

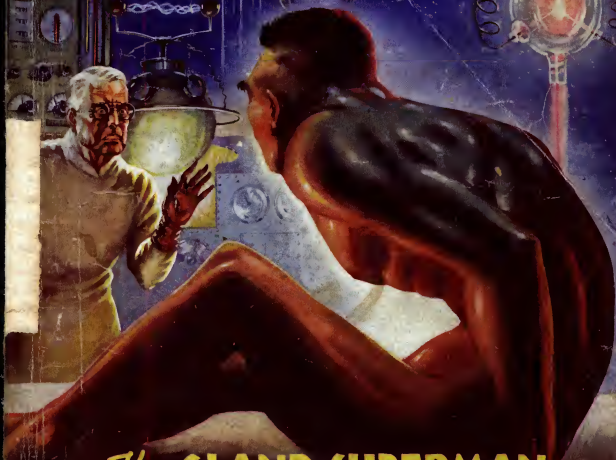
REVOLUTION of 1950 *by* STANLEY G. WEINBAUM

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OCTOBER

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OCTOBER
1938

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NUMBER 5

AMAZING STORIES

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Cover Painting by Robert Fuqua depicting a scene in *The Gland Superman*
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October 1938

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Volume XII
Number 5

The Observatory

By THE Editor



ON December 14, 1935, science fiction lost an author who had risen to the position of science fiction's most famed writer in the short space of one single year. It is the belief of many of his admirers that, if he had lived, Stanley G. Weinbaum would have become another Jules Verne, or an H. G. Wells.

Immediately upon his death, there began a scramble to publish his remaining manuscripts, with the result that everything he wrote of a scientific nature, with three exceptions, has now appeared, quite a bit of it posthumously. These three manuscripts include two long novels, "The Black Flame" and "The New Adam," (to your editor's mind the finest science fiction ever written) and a novelette which reached only its first crude draft before the ultimate author stayed his hand.

Thus, it is with great pride that we present this month, the first installment of a two-part story, the actual "last manuscript" of this truly great writer. Certainly, he did not live to finish it, but none-the-less, he gave to it the expert touch that so quickly and sensationally spelled success with his very first story. This story, like all Weinbaum stories, was plotted and planned with the eagerness of a man who loved to write, and loved especially to write science fiction. There was no thought of writing for money in his mind, but simply for pleasure, and the delight of perfect achievement. Perhaps that is the real secret of the basic worth of his work.

Therefore, we feel, in presenting this last work, we are completing an experience which should cause all of us as great a thrill of pleasure as Weinbaum himself would have derived in seeing his creation placed where others could share his enjoyment. And in presenting it, we want to give great credit to Mr. Ralph Milne Farley, one of his closest literary friends, for his excellent work in adding the finishing touches to the manuscript, and thus permitting its final publication.

Our cover story this month brings back one of science fiction's oldest favorites, Ed Earl Repp. His story, "The Gland Superman" contains a lot of good, solid science, and an exciting story. In bringing you this yarn, we have in mind the fine receptions given to sport stories in the past, like Olsen's "Educated Pill" to recall one of the earliest, and "Suicide Durkee's Last Ride" another favorite.

"Locked City" by another of those persistent English authors, Thornton Ayre, is a story we know you will agree is one of the best of the interplanetary type in quite some time. And for an element of mystery, you'll find it one of the best we've ever presented.

The editors are sure you all know Gordon A. Giles, and we feel that his newest offering, "The Atom Smasher" will strike you as a very convincing story of the discovery of atomic power. His depiction of the social results seems quite vivid and real.

"Artificial Hell" by Harvey Emerson is also a down to earth bit with an excellent climax.

Another of our returning authors is Lieut. John Pease with a novel development of an old theme. We know you'll get a kick out of the last few paragraphs.

And lastly, but not least, Frederic Arnold Kummer, Jr., brings us a thrilling space tale of a derelict ship which has almost become a legend among the hardened sailors of the void.

* * *

ROBERT BLOCH drops us a short note with an original definition of space that strikes us in just the right spot. He says: "Space is a lot of nothing between stuff." Maybe that's been the trouble with science fiction authors; they've been taking this science fiction business a little too seriously. Up to now we've always considered that rather vague term "space" to define something mysterious and all-encompassing, in which was suspended all the wonders of the mighty universe—a terrifying medium holding in eternal concealment all the mysteries of time and matter. Oh, Mr. Bloch, what an iconoclast you turned out to be!

* * *

It is with some measure of pride that we receive the news from Frank Lewis, Inc. (photographers of the June cover photo) of the winning of an award by this color photo in the First International Photographic Exposition, held at Grand Central Palace, New York. The award was signed by judges Nickolas Muray, Hi Williams, Victor Keppler, Paul A. Hesse, and Pirie MacDonald, Honorary Chairman. The winning print was superimposed against the Chicago night skyline in a very effective manner.

* * *

Our cover this month is the first of our new policy of interspersing photo covers with paintings.

It is a scene taken from "The Gland Superman" by Ed Earl Repp, and done by an artist new to the science fiction field. His name is Robert Fugua, a name we feel the readers will soon recognize as belonging to a very capable science fiction artist.

* * *

A poisonous gas is necessary to life! Ozone, really a form of oxygen, having three oxygen atoms to a molecule (ordinary oxygen has two) is indispensable to life. If the quantity contained in our atmosphere were to decrease, ultra-violet radiations and cosmic rays would pour through from space and make short work of all animal life. And a similar danger exists should the ozone content increase, since that would shut out the needed proportion of ultra-violet, and cause disease to become rampant. And life would cease to exist by reason of virulent disease. Truly a strange and delicate balance. Life "hangs by a thread" in more ways than one, it seems.

* * *

Down in the American Southwest, we have a mysterious valley, very well known to the average American, called Death Valley, which holds many interesting things for the tourist, both deadly and beautiful. But most interesting to the scientifically inclined, is the ancient history of this strange valley. It probably occupies a portion of the present continent which can well lay claim to being the oldest part of its entire expanse. It must have been an incredibly ancient sea indeed that finally dried up to leave those extensive salt beds, and those corroded and beautifully colored valley walls. It must have been a peculiarly stable portion of old mother earth, in spite of its location so near to the mysterious earthquake belt that rings the planet in a definite girdle of periodic destruction. True to its name in a more apt way than generally considered, Death Valley is the one place on the North American continent which can be said to have "died of old age."

* * *

An interesting note on Julian S. Krupa, our

new interior artist, is his creation of a cartoon strip very similar to Alex Raymond's *Flash Gordon*, and done in a style as distinctively effective as the popular Sunday feature. Nor does Mr. Krupa's strip, titled *Adventures of Richard Arnold*, need to take a back seat in popularity. It runs regularly as a syndicated feature in fifty Polish newspapers all over the country, reaching millions of Polish readers. The strip is done in the Polish language. Mr. Krupa was born in Poland on Jan. 7, 1913, and came to America at the early age of nine months. His first art work consisted of crude drawings at the age of 3½, but it was not until five years ago that he finally turned his full attention to art. A correspondence course failed to teach him what he wanted, so he became the pupil of a private teacher, and learned rapidly. After free lancing for 2½ years, he secured a newspaper job on a Polish publication doing roto layouts, art lettering, etc. It was then that *Richard Arnold* was conceived, and after syndication, he became the leading strip in the Polish field for popularity.

* * *

In the New York Museum of Science and Industry, Rockefeller Center, there are on permanent display, six specimens of portions of human brains, treated so as to remain perfectly preserved for an indefinite period. Two of them show sections of a normal brain, two more display the effects of cerebral hemorrhage, the fifth demonstrates a brain tumor, and the last a tumor of the pituitary gland.

Strangely woodlike in appearance, these cross sections are so remarkably preserved that they cannot be harmed by ordinary handling, and while they could be damaged by violent means, yet they are so tough that personal examination by even the most careless investigator is possible.

The method of preservation involves a use of a resinous substance, in solution, and the result of this simple soaking process is a marvelous advance to facilitate the brain study work carried on by medical schools.

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Beginning with the November issue, AMAZING STORIES will appear each month, crammed with scientifically interesting and exciting stories, features, and articles. To give you a taste of the marvelous things to come, the November issue features these thrilling stories: *THE MAN WHO LIVED TWICE*, by that master of adventure, Edmond Hamilton; *THE SONG OF DEATH*, a strange yarn of super-sound, by Ed Earl Repp; *REVOLUTION OF 1950*, the smashing climax of Stanley G. Weinbaum's story of America's future; *THE MONSTROSITY OF EVOLUTION*, by Thorp McClusky;

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"My God, Gale," he cried, "That cat's growing!"

The secret of gland control lay in the Para Röntgen rays, of that Harley Gale was certain. Faced with failure, he hit upon a brilliant idea to create a gland champion



By ED EARL REPP

CHAPTER I

Splendid Savage

PROFESSOR GALE led the way onto the thread-like catwalk that arched above the crouching mass of machinery. Close behind him came Perrin, gripping the guard rails tightly as though a little nervous. The four others, members of the Board of Directors, like Perrin, followed gingerly. Step by step they inched their way out over the great electrical monsters, vigilant of their every move, lest they slip and hurtle into eternity on the web of high

power wires that formed a veritable net over the dynamos.

Into the middle of the swaying walk they made their way, then stopped. The tall, slightly bowed scientist gestured at the humming machinery.

"You see, I haven't been loafing on the job," he smiled briefly. "This little outlay here represents fifteen months of planning."

His short, white smock hung loosely from his lean shoulders. Professor Harley Gale looked like the shrewd scientist he was, from the top of his intellectual forehead to his perpetually unpolished shoes. His face was that of a scholar,

his hands those of the artist, his unpressed clothes those of a man who has more to think of than appearances. His gaunt, intense face reflected the keenness of the mind behind it.

As he watched the heavy-browed, red face of the shorter man, his electric blue eyes were anxious. The effect of all this on Professor Perrin meant much to him.

After a moment in which his yellowish, puffy eyes flicked over the scene below, Perrin said sarcastically, "Very pretty. What does it do—supply the city with power?" His thick, protruding lips smirked unpleasantly. Before Gale could answer, he turned around and said suggestively, "Shall we go back, gentlemen?"

The other four men started mincing their way back across the slender steel arch in response to his words, all of them smiling at his evaluation of Gale's work.

Disappointment was plain in the professor's face as he followed. He was staking everything on this visit from Professor Perrin and his satellites of the Board.

Gale would have given ten years of his life for a private fortune at this stage of his career, but his means were limited indeed. For twenty years he had served as head of the Bio-Chemistry department of the Mellon Institute, drawing a yearly salary of five thousand dollars. Not a paltry sum, but only a drop in the bucket to a man engaged in work as expensive as Gale's.

Here in the laboratory of the Institute his every request for money was bickered over. The practical members of the Board, most of them men who knew so little about science that they thought a retort was a quick reply, could see no farther than the end of their purse-strings. They were, first and last, business men. Had they only pos-

sessed the foresight that Gale did, they might have seen the untold benefits that humanity would one day receive from his work.

At the end of the hall Professor Gale threw open the door to the laboratory and showed the five men in.

The white-walled room was nearly forty feet square, with a great, domed ceiling of translucent glass. The whole of the interior was suffused with a gentle, indirect light which filtered through the semi-opaque dome. At the left of the door was a compact battery of great vacuum tubes arranged so that they gave the appearance of the graded pipes of an organ. The smallest of the gleaming tubes was over four feet high, the largest reaching nearly to the ceiling.

STRAIGHT across from the door the entire wall curved outward in a semi-circle. The space thus provided was transformed into a raised stage. The stage was bare except for two large objects. One was a porcelain operating table, and the other, stationed at the end of the table, was a six-foot-tall pyramid of frosted glass. From the top of the pyramid protruded a long, crane-like arm.

Perrin, his fat lips pursed, sized the place up with a jaundiced eye. It was the first time he had visited the laboratory in months, ever since the last appropriation for an appropriation.

"Very impressive," he grunted. "What's this supposed to do—put the Rockefeller Foundation to shame?"

Short, bald, dark-spectacled Doctor Lanton grinned at the Head's humor. The coat encasing his portly body was unbuttoned and his groaning vest, sporting a scalloped effect down the front where his fat stomach pulled open the spaces between buttons seemed about to fly apart.

Behind him cadaverous Henry

Gauntt glanced bleakly about the room. His bald head and white face, completely hairless, gleamed like the porcelain operating table, making his blue eyes glitter like chips of glacial ice.

An angry retort surged up within the scientist. With a great effort he forced it down and managed a smile.

"No," he assured them, "it's all necessary—every bit of it. The work I've been doing here could easily use twice as much space and keep ten men busy."

Perrin's coarse features looked dubious at the statement. Then he snapped, "Well, suppose you get down to business, Gale. Just what have you discovered that entitles you to anything over the thousand a month your department is allowed?"

Harley Gale gestured at the row of chairs before the little stage. "If you gentlemen will have seats, I'll show you the work I'm doing. I'm sure you'll realize the tremendous importance of it." Fortunately, they missed the sarcasm behind his words.

As the shaggy-headed Perrin lowered himself into a chair, Professor Gale walked to the stage and went up the four steps to the platform. While the members of the Board took seats, he hurriedly moved a wooden box-and-chute arrangement from off-stage to the end of the operating table, placing the upper end of the chute against the table. It appeared as though whatever subject Gale intended to use on the table could be slid down the chute into the barred cage when he had finished with it.

Now he stepped through a door at the side for a moment and returned carrying a small, black-and-white tom cat. It was a sickly, scrawny specimen of the ordinary back-alley variety. He placed it on the table and turned to his small audience.

Five pairs of eyes glared coldly at him. Nordstrum — blond, blocky-

headed efficiency expert—leaned back and tapped his thumb nail against his square front teeth. At the end of the row hunched little Matthew Smollett, wizened, acid of expression.

Gale clenched his fists and prepared for the fight he knew was coming. With a determined effort to break down their prejudice, he said earnestly, "I don't need to tell you men what a tremendous power for good or evil the ductless glands are in the body. You've all seen those pathetic specimens, victims of over-or under-activity of the pituitary, the thyroid, or some other of the endocrine glands. Gigantic, soft-boned bodies; beetling brows; thick, brutish features. Or the other extreme, roly-poly bodies of pure fat, and puerile, idiotic faces. Dolicocephalics, cretins, eunuchs—oh, the list is endless. My work for the last six years has been dedicated to the salvation of these unfortunate monsters."

"What are you trying to tell us?" put in Perrin angrily. "You don't have any wild ideas about fooling with the endocrines!"

"That's just the wild idea I do have," Gale snapped. He fought down the impatience that beat up in him. "Did it ever occur to you to wonder *why* we haven't been able to work safely with these glands? Simply because we go at it with strong substances like pituitrin. Why, it's like trying to repair a watch with blacksmith's tools."

"And how do you propose to do it?" Gauntt challenged.

Gale darted a look at him that was both pitying and disdainful. "With light rays," he said simply. "And I don't *propose* to do it; I have already done it on animals!"

Perrin's face was blank, then incredulous; and finally, perforce, cynical. "You're prepared to demonstrate?" he snapped.

Gale nodded. "If you'll have the patience to wait, I'll show you what I'm talking about."

PROFESSOR PERRIN looked startled at the abrupt acceptance of his challenge. The eyes of the group went to the mysterious, glass shielded apparatus the scientist was working with now. Gale swung the long arm that extended over the table into position above the head of it. At the end of the arm was a device something like one of the peanut butter dispensing machines seen in delicatessens. The bottom of the funnel was a lens of sapphire-quartz, and below this, inside a four-inch "pipe" of quartz glass, were stationed refractors.

Gale threw in the knife switch that controlled the apparatus. A subdued humming arose. A weird, purple glow lighted up the frosted glass sides of the machine. Across the room the huge tubes sprang into life, casting their green glow over the white walls. He commenced to adjust the refraction system suspended over the cat.

While he worked, he explained: "These complicated refractors you are probably wondering about perform the work of 'mixing' certain rays that I am employing here. The Röntgen ray and infra-red ray are the primary ones. The ray that results might be called the para-Röntgen' ray, for it is infinitely more penetrating than the Röntgen ray—or the X-ray, as it is called. The difficult part of my job has been to find a glass capable of withstanding the terrific heat produced when these rays are condensed to the concentration I must have.

"This heat is hard for me to explain without going into it deeply. It seems as though a certain sort of 'light pressure' is created as the light passes through the refractors. Unfortunately,

the glass I am using here is only partly successful. However, gentlemen—" he glanced up at them suddenly, "I have been able to achieve something science has failed to do ever since the endocrines were discovered. If you will watch . . ."

He broke off and threw in another switch. From the bottom of the urn-shaped machine shot a wide column of light that entered the glass pipe.

As it descended, shuttling back and forth through prisms and lenses, it narrowed successively, until finally, as it emerged, it was a solid scarlet thread, as opaque as steel.

Gale focussed the ray upon the base of the animal's brain, over the pituitary gland. Then he twisted the rheostat until a half charge of the para-Röntgen ray was entering the cat's body. The light appeared like a solid needle of ruby glass driven into the animal's brain. Still the cat seemed oblivious of the process.

For about five minutes the treatment went on. Then Gale reached for the rheostat and sent the full charge of the ray burning down onto the kitten. The crackling of generators became loud in the room, a sharp overtone to the humming of giant transformers.

Abruptly, Professor Perrin lurched from his chair, his florid face becoming the color of tallow. "My God, Gale!" he cried. "*That cat's growing!*"

CHAPTER II

Wanted—A Champion!

WITH a scuffling of feet and a clatter of chairs shoved back, the five men crowded to the platform and ringed the operating table. It was true—the kitten had suddenly commenced to grow longer and heavier! Before their eyes Gale was creating a monstrous feline from what had been, only

a moment earlier, a tiny kitten.

For another minute the scientist bent over his equipment, his glittering eyes burning onto the spot of glowing red on the back of the animal's head. His forehead glistened with sweat. The cat was fully a foot and a half now, and still growing. When finally he turned off the current, the animal was over two feet long. To all appearances, it was nothing but a strangely marked mountain lion. And yet only a moment ago it had been a small alley-cat!

Harley Gale grasped the switches hurriedly and pulled them out. The room was deathly quiet as the humming and crackling trailed off. He tilted one end of the operating table and sent the brute sliding down the chute into the cage, then slammed the lid shut.

He poked a finger at it. In a flash the cat was screaming in insane rage and tearing savagely at the bars. Its mad caterwauling echoed horribly through the big room as it fought the bars in a frenzy. The creature's eyes were like saucers of green fire. Its fangs clashed against the iron bars as it tried to mangle them.

Gale stepped back and sponged his brow with a handkerchief. As the others turned amazed faces to him, he let his long arms drop to his sides. "And there, gentlemen," he said quietly, "I am stopped."

Not a sound broke the awed silence. Every man of the Board of Directors was shocked, for once, out of his studied cynicism.

"Matter from energy!" gasped Gauntt. "How—?"

"Artificial fixation*, directly from the air," said Gale quietly.

"Amazing!" breathed the board-member.

"I have created a splendid savage," the scientist went on, "but I can do nothing to remedy the horrible distortions man is subject to because of unruly glands. I can cause growth, as in this case, but that is all. My para-Röntgen ray is strong enough to penetrate only to the outer layer of the glands. To reach the delicate inner parts of them, and thus to cure the various diseases, I must have one thing more. Before I tell you what that is, let me show you something."

Wordlessly, they followed him into the subject room that opened off the stage. The room was at the end of a short hall. It was a narrow room, only six feet wide and about fifteen feet long. The walls of it were lined with cages.

Professor Gale went to a large cage about ten feet tall and correspondingly heavy. A shaggy gorilla came to the front of it and stared out at them. There was something odd about the animal, some expression in the eyes that caused a puzzled frown to crease the men's foreheads.

Gale turned to Perrin. "What species would you say this is?" he asked.

"Why—the ordinary gorilla," the director replied.

Gale shook his head. "That animal is a chimpanzee," he announced quietly. "Formerly it was about three feet tall. Its strength now is approximately twice that of an ordinary ape."

He shrugged, as looks of surprise

* It is an accepted universal law that nothing is lost in the universe, but merely undergoes change. The combustion of matter produces energy, heat, light, etc. Conversely energy can be re-converted into matter, which is what Professor Gale does here. The added mass of the cat is derived from the powerful stream of electronic energy pouring its electrons into the formulation and fixation of

matter. Nature does this in the action of plants, transforming nitrogen into proteins. Man does it in the laboratory in several ways, notably the well-known Haber process, which utilizes pure nitrogen and hydrogen and with the action of a catalyst, uranium, osmium, or platinum, producing ammonia and in another step, nitric acid, by the Ostwald process.—Ed.

crossed their faces. "Unfortunately," he went on, "it is simply one more evidence of my failure. I was trying to cure the creature of a thyroidal disorder, a soft-boned condition. I failed. It has been made into a giant, but its bones are still as soft as chalk."

HE led them past cages crowded with unearthly creatures that brought startled gasps from the Directors. Rabbits as large as sheep; mongrel dogs the size of Saint Bernards; canaries whose beaks could have crushed walnuts; and a large, glass-lidded box full of such things as a foot-long grasshopper, a flea as big as an armadillo, and mice the size of puppies.

When all the subjects had been exhibited, he turned suddenly to the men. His eyes bored into theirs with a challenge. "To continue my work I must have more money. You are allowing me a thousand a month. I—I need more than that."

Perrin snorted, "How much more?"

Gale hesitated a moment, then replied quietly, "Two thousand dollars. A total of three thousand a month."

Henry Gauntt started, gasped, "*Three thousand dollars!* Why—it's preposterous!"

"But realize the value of the invention!" Gale defended hurriedly. "In the first year alone the discovery will at least double the money you put into it! There should be a number of wealthy men who'd be eager to put up the extra money on your advice. And aside from that, think of the inestimable good we can do for a suffering world."

"Do I understand," Perrin put in acidly, "that you intend to perform this experiment on *human beings*?"

"Exactly," Gale snapped. "How else can I demonstrate its worth?"

Perrin clenched his fists. "Professor Gale," he said flatly, "it is my earnest

wish that you forget this unholy discovery of yours! It is unthinkable that an experiment such as that should take place in the Mellon Institute!" He turned to the others. "Do I speak for you gentlemen?" There were nods of agreement.

"You're refusing me the chance to develop my discovery?" Gale asked angrily. "The chance to learn the secret medical men have—"

Widened little Matthew Smollett cut in, "I can see no practical value in these brutes of yours. Freaks. Nothing more."

"But *think!*" the scientist implored. "I am only one step from the greatest scientific discovery of the ages! For a sum that will later seem paltry . . ."

"Your experiments have cost the Institute a small fortune already," Perrin interrupted him. He turned and jerked his head toward the door. As the others moved away, he fixed his puffy eyes on the scientist once more. "I must ask you not to let word of this get to the newspapers. It is our policy to avoid—sensationalism!" He turned his fat back on Gale and walked after the others.

For a long time after they left, the professor still stood in his subject room staring at the open door. Somehow his mind refused to give credence to the denouncement of his discovery. It was unbelievable that such short-sightedness could exist. At last he went back to the laboratory and put things away. Despondently he left the building and drove home.

The green shrubbery of spring seemed a dull gray to him, for his spirits colored everything with his own discouragement. To be so close to the fulfillment of his dreams and yet to be a million miles from it. At that moment he hated Perrin and the others as he

never knew he could hate anyone.

At his little cottage he prepared his lonely supper and ate with small appetite. His thoughts constantly recurred to the brutal reception he had been given. He knew that there were dozens of men who would be eager to help, and yet with Perrin's denunciation saddled on him, these men would not even give him a hearing. How such a bigot as the Head of the Board had got into the open-minded Mellon Institute, he could not imagine. At last, to take his mind off his troubles, he propped his evening paper open and began to read as he ate.

Disinterestedly, he turned the pages. All at once he frowned. His mild eyes looked interested. And then, suddenly, he grabbed the paper and held it with both fists. His eyes burned with a feverish light as he scanned the black banner line spread across the sports page: "Heavyweight Champion Joe Bannock Collects \$1,000,000 for Thirty Minutes' Work!"

One million dollars!

THE words pounded at his brain, staggered him with the import of what he had read. He surged to his feet and let the paper fall to the floor, while he stared straight across the room. For his brain had telegraphed to him, in the instant he scanned those words, a statement he had read long ago. A prophecy by a prominent boxing expert who had said: "If only a clever lightweight could be suddenly transformed to the size of a heavyweight, and yet retain his agility and his hair-trigger mind, he could undoubtedly have the championship of the world without working up a good sweat."

Gale's mind echoed, "A clever lightweight — transformed to a heavyweight." Suddenly he kicked the chair back and strode away. His eyes were glassily bright as he exulted, "I'll do it!

I'll make a superman no one can beat. I'll build my own champion! A gland champion!"

The way out of his difficulties had opened up. If he could get some obscure prizefighter to submit to the operation, the process would render him, like the ape, tremendously powerful, but otherwise exactly the same. He would have more than the strength of a heavy-weight but the nimbleness and alert brain of a small, clever man. The winnings would be unlimited, for such a fighter would be invincible. And half that money would be Gale's! That money would enable him to continue his work.

The way was fraught with danger, but at least it was a way, if only he could find a man willing to undergo the operation. The whole thing would be done without anyone's knowing of his connection with it. And Professor Perrin and his supercilious satellites would be shown up for the bigots they were!

For a week Gale visited the different gymnasiums where, for a small sum, prizefighters could work out and find others willing to go a few rounds with them. The warm odors of sweat and leather and liniment were familiar to him, for he had been an athlete himself when he was in college. He still had a tiny pair of gold gloves signifying that he had won the intercollegiate light heavyweight championship during his last year at Columbia. He found that the knowledge he had picked up so long ago was serving him in good stead now.

At first the different fighters all blurred into a succession of very similar faces and form. Then, from the dozens he watched fight, several began to stand out. He got to know all the "comers" and many of the has-beens at sight. There was one young fighter in particular who caught his eye.

He was not over twenty-five, and had

a clean-limbed build and a clever, effective style. He was as deceptive and quick as a bantam-weight. Gale frequently saw him feint a larger man out of position by nimble footwork, and then move in and tag him twice before his opponent knew what had happened. Hitting him, Gale heard a battered sparring partner mutter, was like swatting flies with an unstrung tennis racket.

And yet Gale had never seen him win from a really good heavyweight. The thing that held him back was obvious: the top-ranking heavies were simply too tough for him. He was too big for the lightweight class, too small for the heavyweights. Professor Gale had seen others like Wade Henry. All of them had ended up as sparring partners before very long.

Finally, one day, while Henry was working out with another fighter, he approached his trainer and gave him an envelope to be delivered to the young fighter. Inside it was a twenty-dollar bill and a short note asking him to come to the laboratory at nine that night. Gale left before the note was delivered.

At nine-fifteen that evening a knock came on the outside door of the laboratory. The scientist hurried to open it. As the light from the interior flowed over the visitor, Gale knew his note had been honored. Wade Henry's brown, ruggedly-handsome face peered in at him. Quickly he showed him in and preceded him to the laboratory.

AS he looked him over in the light, he knew he had picked a good subject for the experiment—if only the fighter was willing. He had an intelligent, alert face and the lithe tread that bespeaks the natural athlete.

Inside the big room, Henry turned to Gale. "I got your note and the twenty bucks," he said. "What's the catch?"

"There's no catch," Gale hastened to assure him. "The reason I sent for you is that I'm looking for a man to build into the heavyweight champion of the world, and I think you're it!"

"Me?" The blue eyes under the slightly battered brows were amused. "You picked the wrong man, pal. I ain't got the weight to stand up against the big boys."

"No, but if you did have—" Gale put in eagerly. "I've watched you fight, and I think if you weighed forty or fifty pounds more and were correspondingly powerful, you could lick them all!"

A low laugh broke from the fighter's lips. "Sure. An' if I weighed four hundred pounds I could probably take 'em on five at a time. The only trouble is—I don't."

Gale could scarcely repress his eagerness as he sought for words to explain his proposition. If he simply blurted out the story Wade Henry would think he was crazy. Finally he began, "I've got some interesting subjects in the other room that I'd like to show you. After you see them, I think you'll be able to understand what I'm trying to tell you a little better."

The prize-fighter was mildly interested in the collection, but apparently saw nothing unusual in it. But when Gale informed him that every animal and insect in it had been expanded to at least three times its original size, he was amazed and incredulous.

"You mean that gorilla's really a chimp!" he snorted. "It ain't possible."

"But it is," the scientist said earnestly. "Come back in the lab and I'll let you see for yourself."

Eagerly he led the way back and secured another hybrid alley cat on which to perform the experiment. All went well. At the end of eight minutes the animal was in a cage snarling and spitting its rage at the world.

"Geez!" Henry gasped. "Am I seein' things?"

"All you're seeing," the professor said, "is the way I could build you into a two hundred and fifty pound fighter."

Henry stared, his mouth hanging open.

"This is the whole story," the scientist explained earnestly. "I'll tell you everything from start to finish, and then you can make up your mind."

For several minutes he explained, leaving out nothing. At last he concluded, "From your viewpoint, there is absolutely no drawback at all. You will become bigger and more powerful and you'll be just as fast on your feet and as clever as you are now. The money you win will be divided fifty-fifty. In a year's time I think we can make a million dollars—five hundred thousand apiece. What's more, you'll be heavyweight champion of the world!"

"Five hundred thousand bucks!" Wade Henry walked off slowly, rubbing the back of his neck with his palm. "And heavyweight champion of the world." Abruptly, he turned and walked back, stuck out his hand. "It's a deal, Professor! I got nothin' to lose, an' a lot to win. When do we start?"

"Right now!" Gale snapped.

"Henry, you're going to do more than just win the title. You're going to give me the means of doing for mankind the greatest thing that has ever been done in medicine! You're going to be the first laboratory-constructed champion in history!"

CHAPTER III

One Punch Hogan

PROFESSOR GALE'S fellow faculty members wondered what had happened to him to make him cool off so suddenly on his laboratory work.

A certain sports editor, Howard Macklin, could have told them. He, too, was startled one evening when, in response to a call from Gale, he came to his little place in the suburbs. He and the scientist had been team-mates back in 1912, on the college boxing team. Since then their paths had gone different ways, but still they kept in touch with each other sporadically.

In the small building he had constructed behind his house, Harley Gale exhibited his compact gymnasium and then called in his fighter. Macklin's florid face was startled when he saw the magnificent specimen that came from a back room.

Wade Henry could never have been recognized as the underweight heavy of a few weeks before. He stood six-feet-six and had shoulders that could barely be squeezed through a doorway. As he stood by the two men, he looked down at them as though on children. His chest bulged with hard, symmetrical muscles and his flat diaphragm was ridged with stomach muscles that stood out like the lines of a washboard. When he walked, his bronzed skin rippled with the firm sinews beneath it. In trunks and boxing shoes he looked like some Greek statue come to life.

"Great guns!" the newspaperman gasped. "Where did you find him?"

"Just a—a discovery of mine," Gale replied enigmatically. "One Punch Hogan, he calls himself. Watch those muscles of his as he punches the bag. You'll see where he gets the name."

The giant prizefighter paused to shake hands with the sports editor. Macklin winced and nursed his hand as the boxer walked off to the bag. "One Punch" Hogan hadn't quite learned his own strength yet. . . .

Hogan pulled on his light training gloves and experimentally tapped the bag. Then his big shoulders went into

lazy action and the gloves began rhythmically drumming the bag. He seemed to put forth utterly no effort at all, and yet the bag thundered against the iron rim of the standard as though it were being punished. After a minute of steady punching he drove a long, slow punch at the vibrating bag, his back muscles standing out sharply. With a loud "bang" it was split open!

Macklin gasped. Before he could say anything, Hogan grinned and walked to the long, leather sand-bag and commenced sinking light blows into it, at the same time feinting and weaving before it with the agility of a featherweight. The thudding of his gloved fists on the hard surface of the bag showed the force with which it was being struck. Abruptly, the fighter squared off as though he were toe to toe with a real opponent, and began throwing hard blows. The two hundred and fifty pound bag bounced repeatedly from the shock of the punches. Then there was a particularly loud thump, a ripping sound, and a cascade of sand streamed onto the floor from the split-open sand-bag. A blow that would have broken an ordinary man's fist had smashed the hard-packed leather sack!

"Why—why, that boy's got the strength of a bull!" Macklin gasped. "He's a coming champ, or I miss my guess."

"That's why I called for you," Gale said. "To build him up the way he should be, I'll need a lot of publicity."

"You mean you're managing him?" the editor asked. "Thought you were a scientific man?"

"Ordinarily I am, but this is a chance I can't resist. There's one favor I want to ask of you, however. The faculty at the Institute would throw a fit if they knew what I was doing. If you can help me out by simply saying that Hogan's manager is 'Jack Burns,' I'll be

eternally grateful."

"Well—it's a funny thing for a man with a fighter like this not to want publicity, but if that's how you want it—okay."

Appreciation warmed Gale's eyes. He said impulsively, "I knew I could count on you, Macklin. If ever I can help you. . . ."

MACKLIN waved his cigar in the air. "Glad to do it," he said. "My prediction is that in six months you'll both be in the money. In a year, if your boy's got the brains to match his body, maybe a shot at the crown!"

One year! The words pounded through the scientist's brain as his friend turned to go. One year until he would have the means of finishing his work. That year would be the greatest gamble, perhaps, that any man had ever made, but the prize in the game was worth the risk.

The muted roar of the crowd was a far-away clamor in the little underground dressing room. It brought a touch of unreality to the whole, unearthly affair. It was difficult for Gale to believe that up there, in the American Legion Stadium of Detroit, thousands of men and women were waiting to see his man emerge from the tunnel and climb through the ropes.

But the big scrapbook on the battered training table formed a tangible bridge between unreality and truth. Gale's eyes flicked rapidly over the pages. Headlines and pictures, paragraphs clipped from sports writers' columns. "One Punch Hogan Floors Mickey Ryan in First!" "Larenti Takes Count in First Round as Hogan Tallies Sixth Straight Win!" "Odds Give Hogan Ten-to-One Over Buddy Mack!" And on the last used page of the book, a recent headline: "One Punch Hogan's Fifteenth Straight

Kayo Earns Shot at Title!

Fifteen fights—fifteen knockouts in the first round. It told a story the sports world was going crazy over. Fortunes had been made and lost in bets on the mysterious giant. And in the bank were two fortunes that Professor Gale had saved from their earnings. Two hundred and fifty thousand dollars apiece, waiting for them. It needed only tonight's million-dollar purse to complete the sum he needed. After income tax deductions and the hundred other deductions, he would still have what he needed to finish his work uninterrupted.

Beside Gale, on the table, lay an open newspaper that told the rest of the story. The headline read: "Champion Joe Bannock Defends Title Against Hogan Tonight!"

A shadow of anxiety clouded the scientist's eyes as he looked away from the paper. The magnitude of it had suddenly come home to him. Never before had he realized how big a thing he had plunged into. But when he thought it out coolly, he knew there was nothing to worry about. With a small exception, Hogan was absolutely normal. The only difference he had discovered was that he was more than ordinarily susceptible to suggestion. Still, that was no drawback. It only made it more certain that he would keep to the terms of their agreement.

He started, as a knock came on the door. Someone called, "Five minutes, Mr. Burns!"

"Coming!" Gale replied. He was startled at the strangeness of his own voice. Now Wade Henry stood up and rubbed his bandaged hands together. He appeared as unconcerned over it as the scientist was worried.

"One sock is all I'll need," he promised. "I'll put Bannock away inside of a minute." He tugged the cord of his

dressings robe tighter. His huge shoulders bulged massively under the blue cloth. There was not an ounce of excess weight on his body tonight; he was trained to a hair. His rock-hard body was tanned, and the skin firm over tough, resilient muscles.

"I'm afraid it won't be so easy as that," Gale reminded him. "Bannock is nearly as big as you are and he's smart. Not only smart, but not quite as clean a fighter as he might be."

"He won't try any of his stuff tonight," the boxer frowned. "There's too big a crowd and too darned smart a referee. I think it'll be a pushover, myself."

Gale sighed, "I hope you're right. If we lose tonight it will throw everything off indefinitely. Bannock wouldn't agree to a return fight for at least a year."

HE opened the door and they went out. The sound of the crowd rolled in on them in a suffocating wave. Reporters crowded the narrow concrete tunnel and hounded both men for a statement. Gale was taciturn, Hogan grinning and obliging. His handsome, rugged face showed above the men's heads as they went along the tunnel. He predicted that the fight would not go over thirty seconds, and pushed them out of the way to exhibit the one-two that would end the battle.

At the ringside they ducked through the small door into the smoke, the glaring light, and the shouting of fight fans. A great roar swelled up and seemed to beat against the low clouds as Hogan climbed through the ropes and shook his hands at the crowd. His dark, strong face was split by a grin.

The ring was a tiny white square in the stadium, like a postage stamp in the center of a wash tub. Batteries of lights poured hot beams of brilliance

down through the night. Smoke boiled in the rays like fog.

Champion Joe Bannock was already in his corner. Gale sat close to the ring and stared at him. He was a great, black-haired man with a mass of curly hair and a protruding jaw. His nose was flattened from the batterings of seventy fights. He had high cheek bones that emphasized the deep-set black eyes. Bannock was nearly as big as Hogan. Six-feet-three, he weighed two hundred and twenty-five pounds. His muscles were the heavy, bulging sinews of the laborer.

Almost before Gale realized it, the bell rang for introductions. As if in a dream he saw Hogan walk to the middle of the ring. Both men were introduced to the crowd and then to each other. They shook hands, turned abruptly and went back to their corners. A queer tightness gripped him as he held his breath waiting for the fight to start. This was the moment he had waited for and yet dreaded.

Across the ring Bannock hunched forward, his long arms stretched out along the ropes. His scarred face was eager, hard, as he waited. Suddenly the bell clanged. The fight was on!

CHAPTER IV

The Renegade Champion

BANNOCK darted from his corner to the middle of the ring and stood there with his gloves held low as the giant challenger moved forward. His long left arm shot out stiffly and flicked a stinging blow to Hogan's ear. The other man danced back and tried a counter right which missed by a fraction of an inch.

Gale's fists clenched as he strained forward in his seat. Sweat beaded his forehead. The screams of excited fight

fans were a faroff sound in his ears. His mind was in the ring, feeling the pain of the champion's blows and striving to figure out his next move, as though it were he, instead of Hogan, who was fighting.

Joe Bannock feinted with his left, suddenly, then sidestepped and looped a hard right hook into Hogan's jaw. The big fighter backed off and shook his head. A tiny trickle of blood came from his nose. He looked a little surprised. Bannock was by far the trickiest and fastest fighter he had met yet.

In the next moment every observer in the stadium came to his feet as One Punch Hogan faked a side step, then jerked his muscular body back swiftly and drove in hard, his head lowered. Over the clamor was audible the smack of leather on flesh. The champion fell back and tried to cover up. He floundered and went down.

The referee rushed up, said something to Hogan, and the giant shuffled across the ring to a neutral corner. At the count of four Bannock came to one knee, shook his head, then came up groggily.

Swiftly Hogan slid from his corner and moved in for the kill. His feet seemed barely to touch the canvas as he danced in. His splendid muscles rippled as he moved, biceps bulging as he held his arms close to him, left glove against his ribs, right glove cocked. The champion stumbled back clumsily as the challenger came on.

And then, even as Hogan prepared to shoot in his deadly right hand, the groggy champion snapped into life. His weakness had been faked! Before Hogan could cover up, Bannock slammed in a roundhouse right to Hogan's chin that lifted him on his toes! He stumbled forward blindly, reached for Bannock to clinch with him. A staggering body blow took him squarely over the

heart and spun him about.

One Punch Hogan's face was a white, blood-smeared mask as his knees bent and dumped him rudely on the canvas. The champion raised his hands and shook them at his handlers as he moved to a corner. Hogan lay there motionless—a bleeding unconscious hulk!

Down in the audience Professor Gale groaned and stared at the fallen man with feverish eyes. There on the floor lay the end of his dream! Bannock had been too clever for his man. Overconfidence, the midget that cuts down giants, had brought defeat to Hogan.

Suddenly Gale recalled something that had seemed unimportant before—Hogan's susceptibility to mental suggestion. It worked with the animals in the laboratory, why not with Hogan? Gale's hands clenched the arms of the chair as he thought of it. Why not overcome the lassitude of Hogan's body by impressing it on his mind that he must get up? He put it to the test.

With every ounce of energy he possessed, he drove his brain to the seemingly hopeless task of dragging Hogan to his feet, to try to last out the round. His face became white as he closed his eyes and fought against the terrible inertia of tortured nerves that held the fighter to the canvas with the power of an electromagnet. "Get off that mat!" he groaned. "Get to your feet! *Get to your feet, man!*"

The crowd was oblivious of the struggle going on. Shrill screams of women punctuated the hoarser shouts of men, "Kill him! Kill him!" rang through the stadium on lips of every fan, that swelled to a roar that shook the foundation. "Kill him; kill him!"

Gale's eyes snapped open as the roar of the crowd died down. He shot a look in the ring—to see Hogan come to his feet and stand there panting, his great

chest swelling with sobbing breaths. Relief flooded Gale's body and he almost sank down.

Now the challenger shook himself and stared about like a man newly awakened. He spotted Joe Bannock as he maneuvered for the final, smashing blow. Suddenly, from his bloody lips came an animal-like roar. He sprang forward with both fists swinging. Bannock drummed three triphammer blows into his face with battering force. But though their power snapped his head back, the giant kept coming. "Kill him! Kill him!" the crowd kept roaring.

BANNOCK was forced to fall back as Hogan came plowing on. He forgot his *coup de grace* and turned all his efforts to avoiding the crushing round-house swings that threatened to smash into his head. And still the enraged challenger stumbled on. Faster now, until he had backed the champion into a corner. His face was dark with bestial fury. Bannock saw the look in his eyes and tried to duck.

The amazed crowd forgot to yell.

Smack! The sound of the blow echoed all over the momentarily stricken silence of the stadium.

Bannock staggered. As he stumbled near the ropes with Hogan close behind, Gale got a good look at the giant. His face was unrecognizable in its ferocity. His lips were moving as though he were talking to himself. And then it came home to Gale. He lurched erect in his seat. He gasped, "Good Lord!"

For Hogan was muttering, "Kill him! Kill him!" in obedience to the crowd's shouted orders! Gale's mental suggestions had been crushed under the weight of the thousands of minds screaming for him to kill. He was trying to murder Joe Bannock.

Wildly excited now, the recovered crowd roared thunderously.

The slap of leather signalled another blow to the champion's face. The vicious punch straightened him up. Hogan crashed a third blow into his stomach and doubled him over. With a vicious uppercut he slammed his gloved fist into the champion's jaw and brought him up on his toes. With a last, deliberate shot, Hogan smashed Joe Bannock straight back into the ropes. The helpless fighter slowly slid down and sprawled over the floor.

The referee moved out and started the count. By the time "ten" was pronounced Bannock had not stirred. The referee went towards Hogan to raise his arm as the throng shouted its excited approval.

But the new champion's hand was never raised. With a bestial snarl he slammed his big fist into the official's face, then grabbed him and commenced strangling him. In his big hands the referee shook like a rag doll.

From both corners the seconds came running. They seized the mad fighter's arms and legs and sought to haul him off the gasping man. Hogan released the referee and took a man in each hand. He knocked their heads together and tossed their unconscious bodies to the canvas. A vicious blow to the jaw flattened another second. The last man saw his danger and ran back out of range.

Over the screams of the crowd the professor shouted to Hogan to stop. His words were drowned in the shrilling of police whistles as a dozen blue-coated figures climbed through or over the ropes. Black-jacks were raised to menace the madman.

Hogan stopped and looked at them. Then he muttered, "Kill!" and charged them. His flying fists and flailing arms flung them about like corn stalks. Black-jacks thudded on his skull but were helpless to stop him. There was

no room for pain in a mind filled with hate. Now he threw off the last policeman and vaulted the ropes. The ring-siders screamed and fought to get out of his way.

Gale stumbled over people's feet and legs to the aisle and ran after him, but quickly the crowd closed in behind the mad champion and shut him off. The immense stadium became a shouting, gesticulating hell. Those arms and voices kept him from reaching the monster and calming him. At last he turned and went back to the ringside, convinced of the hopelessness of catching him now.

He saw Reissner, the promoter, standing there with a check grasped in flaccid fingers. Reissner started to protest, and then blabbered, "What's—what's amatter with your man, Burns? What's he . . ."

"Never mind," the scientist clipped. "We won. That's all that matters right now."

Gale darted into the tunnel and hurried out. One strain hummed through his mind. To get back to the laboratory and try to think . . .

THE next few hours were a turmoil for the anguished scientist. He drove hurriedly back to the laboratory and rushed inside. His mind, already weary with the struggle he had had, was tortured with bitter self-recrimination.

He had loosed a madman on the world, a madman with terrible strength. His desire to help mankind had backlashed. Innocent persons might be killed before the giant was captured. Perhaps the Board of Directors had been right—he was experimenting with things too dangerous to be chanced. And yet, inside himself, he knew it was not true. It had been only that chance blow, on a certain nerve, that had upset all his calculations at the last moment. He

realized what had happened. The same glandular disorder that made the cats go insanely savage had been produced. That, coupled with the crowd's suggestion to kill, impressed on the fighter, now, forever, had developed a homicidal maniac.

He brightened a little when he realized that he had the money at last to continue the work and perhaps cure Hogan. But what good would it do him to perfect the process if he could not get near enough to Hogan—or Wade Henry—to use it on him? At any rate, he must occupy every moment of his time from now on in trying to finish his experiments. He must work secretly and try to undo the harm he had done, without bringing disgrace on the Mellon Institute and himself.

With the speed of thought, he rushed for the safe where all his formulae were locked. But even as his hand touched the dial, a familiar, harsh voice barked, "So you've done it! Ruined your own reputation and ours!"

Gale whirled to see the shaggy head and slack-bellied body of Professor Perrin standing in the doorway. He was holding a newspaper. Behind him, in the corridor, he could see the other members of the Board.

"Done it!" he gasped. "Done what?"

Perrin stalked in and thrust the paper in his face. Gale looked searchingly in his eyes, then took the paper and spread it out before him. Of a sudden he stiffened.

The story of the fighter's escape was spread all over the front page. At the top of the page, in the left hand column, was a picture of himself — of Harley Gale—and captioned, "Professor Harley Gale, of the Mellon Institute." And in smaller type below, "First photo of the mysterious 'Jack Burns,' who has been secretly managing One Punch Hogan. An alert photographer managed to

snap this picture in the new champion's dressing room, the first one yet taken of the insane champion's handler."

Gale's slender frame slumped. It was as though this final blow was too much to fight against. His voice was husky as he said, "Well—give me credit for trying to save the Institute's name, at least."

Gauntt stepped around Perrin and sneered, "Will that help the poor victim of your selfishness? With every officer, and every man who owns a gun, even, out to capture him dead or alive, that will do him a lot of good, won't it?"

"Dead or alive!" gasped the scientist.

Perrin snorted, "Probably dead. No one would be fool enough to try to capture that maniac alive." He stared owlishly at the stunned professor for a long moment. Then: "How soon can you leave?"

Gale jerked, "Leave? Why—I can't leave now. I've got to discover some way to bring Henry back to normal."

"Surely you don't expect us to tolerate you any longer," Perrin bit out acidly. "You've acted inhumanly towards a fellow being, disgraced the Institute, and deliberately disobeyed our orders. Gale, I'm demanding your resignation tonight!"

"But—I" Gale floundered for some argument to support his request. "Can't you see—don't you understand that I'm the only man who can save him? Are you going to deny me the chance to make restitution?"

"We are," Gauntt levelled at him.

Gale stepped forward and grasped Perrin's coat lapels. "You've got to give me a chance," he insisted vehemently. "Thirty days is all I ask. After all—think of the prominence it will bring the Institute if I succeed!"

THE spark of selfishness in Perrin was touched. He considered, then

shrugged, "Very well, we'll take a vote." From his pocket he took a notebook, and tore out a sheet of paper. He ripped it into five slips and gave one to each man. "Those who believe Gale should be granted 30 days respite will mark their ballots with 'yes.' The others will mark them 'no.'"

Gale's pulses thundered in his head as he saw the slips marked, folded and collected in Perrin's hat. His lips were dry. Perrin withdrew the first slip.

"'Yes,'" he read. He took out another. "No," was the verdict. The third one revealed a second "No." Gale's eyes fell as the tide commenced to flow against him. Then Perrin's voice cut into his consciousness, "'Yes.' That makes it even. The last must decide."

The whole laboratory seemed charged with tension as the final slip was withdrawn. For just a second Perrin hesitated. Then he opened it. Gale almost collapsed as he saw the answer, written in bold letters—"Yes!"

Perrin was disgusted. "You're getting a chance you don't deserve," he snapped. "Try, for once, to act as though you were sane. You have exactly thirty days. Goodnight."

He turned, and, jamming his hat on his head, went out. The others followed him.

Gale ran his fingers through his crisp gray hair. "Thirty days to perform a miracle," he mused. "A month to do what men have failed to do for thousands of years."

CHAPTER V

Quantity X

HE went to work blindly the first week. His alert brain, stunned by the catastrophe, refused to function normally. Ordinarily he could take a mass of information and from a simple per-

usal boil it down to its barest elements and infer what could be made of it. Now he groped in the sheaves of papers on which his data was recorded. But he found nothing. The ape's bones remained as soft as ever despite his constant trials; the cats were still savage as devils.

Day by day he scanned the papers eagerly for news of the monster. Every fresh atrocity—robberies, sabotage, attempted killings—heaped more coals on the scientist's head. Almost every day Perrin would come into the laboratory and scoff at his work or taunt him with his terrible blunder.

Miraculously, Wade Henry was still alive. He had been shot at a number of times, but the shooters' nervousness had saved him. Periodically he would appear in some small town, rob the stores of what he needed, and leave. Two men who had tried to take him by force had been slightly injured. And still Gale's hopes burned at fever heat that Wade Henry would be captured before his month was up.

And then, just three weeks after Perrin's ultimatum had been delivered, he stumbled onto something. His apparatus was perfected as far as he could go with it in its present state, and still it was not good enough. In desperation he left the laboratory and entered his study. Idly he dropped into a chair and picked up a book, more with the idea of forgetting the battle for a while than of learning anything from it. Lackadaisically he glanced at the title—*Röntgen Rays*.^{*} He split the book open at random and glanced in it. The first sentence he read caught his attention. "Now, glass is only partially transparent to Röntgen rays; therefore the oblique rays would be more absorbed in passing through the glass than the rays

^{*}Barker, George F. *Röntgen Rays*, Harper and Brothers, New York and London.

which come in a normal direction."

The thought jarred him like a physical blow. He had been paying no attention at all to polarization of the rays he used in his work! If they were traveling obliquely, naturally their efficiency would be reduced. With new hope he hurried from the study and set about rearranging his prismatic apparatus. At last his problem—his "X-Quantity"—was clearly defined: to cause all his para-Röntgen rays to enter the gland at a horizontal plane, for only in this way would full power be obtained.

All the rest of the afternoon and all night he labored over the machine, now grinding, now polishing. When it was finished he turned away, too tired even to try it out, and shambled to his cot, which he had brought to a spare room off the laboratory in order to save time going and coming to his home. Gratefully he crawled between the blankets.

Three hours later he was up again. After a hurried breakfast he went out for the news. He groaned aloud as he read the latest tidings on the brute he had created. He had assaulted a policeman in a little town twenty-five miles away, and in the battle the officer's neck had been broken! He would live, the account said, but at least three months would have to be spent in the hospital. Gale felt as guilty as though he had been the attacker himself.

Then, anxious to test the new prisms, he went to the subject room and brought the ape out. Hot, piercing lights burned in his dark eyes as he treated the animal. After a few minutes he stood back, the ray still burning down onto the animal's neck. Gingerly he took hold of its forearm. Slowly he applied pressure. If he could detect the slightest bending of the bones, he would know he had failed. His lips were tightly compressed as he continued to exert pressure. But after a few seconds

the same ominous resiliency told him the verdict: failure.

In despair he reached up to switch the machine off. As he did so his hand passed below the refractor. A spark of red fire seemed to leap from the diamond ring he wore. He started, then experimentally moved it back into the path of the tiny thread of scarlet light. Again there came a dazzling splash of red light spraying out from the diamond. While he held his hand there, the ape groaned. Gale's eyes swept down. The brute was stirring restlessly under the new ray which speared its skin. Suddenly Gale reached down and grasped the ape's arm again.

HE exerted a little pressure. Then more. Still more. And yet the bone did not give! The ape had been cured! Now he knew what the ray needed—some slight polarization property of diamond to eliminate a foreign ray which neutralized the para-Röntgen.

That meant another rebuilding of the apparatus and the installation of a properly ground diamond. It was several minutes before Gale could drive his tired mind and body to the task. Then, with a prayer that he could duplicate the cut of his ring diamond, he set about completely overhauling his machine and changing the entire set-up.

For twenty-four hours he labored without a pause. Under his skillful hands the various prisms were once more installed in place. The diamond, ground by himself to what he hoped was the right shape, was fixed into the end of the quartz-glass pipe. But the final test would have to wait. Harley Gale knew if he attempted to use it now, he would fall asleep in the middle of the experiment.

Wearily he shambled to his bed and fell into it. He dropped instantly into a

dark, bottomless sleep. His mind, utterly worn out with the twenty-seven days' labor, was getting its first rest in days.

Out of a sound sleep Gale awoke to find he was shivering. For a moment his sleep-weighted eyes would not open. He shivered as a tremor passed over him, and then opened his eyes and glanced around. He saw in a flash why he had been cold. The window beside his bed was wide open, and the curtains were fluttering in the night breeze that crept into the room.

A half moon shone through the window, throwing a rectangular pattern across the bed. Gale gathered himself for the ordeal of getting out of bed to close the window. Suddenly he realized that he had shut the window before he went to bed! In the next moment, before his startled mind could function, a huge shadow blotted out the moon and sprawled over the bed.

Gale's eyes caught one brief look at the intruder's face before he was in the room. On his shocked mind was stamped the savage, distorted countenance of Wade Henry!

CHAPTER VI

The Man from Hell

FOR a long, horrible moment he could only lie there and watch the brute sprawl into the room. As the fighter straightened up beside the cot, his gigantic body loomed ominously over Gale. With a start, the scientist broke the spell and scrambled out of bed. His groping hand found the wall switch and flooded the room with light.

The heavyweight looked even more horrible as the light spilled over him. Dirty, ragged, bloody, his body was still clothed only in his fighting trunks.

Deep scratches, clotted with blood, criss-crossed his dark skin. In the black beard that stubbled his jaws and chin, his mouth hung open, saliva making his lips gleam lustfully. His nostrils dilated with each noisy breath. Mad lights sparkled in his eyes.

Gale commenced edging toward the door. Instantly the brute stepped in his path. His great arms hung loosely as he advanced. Then he spoke, his slobbering mouth mumbling one phrase again and again: "Kill him! Kill him!" But this time the words were more vicious, even, than before.

The scientist fell back a little as the words jarred on him. Desperately he eyed the door, but he knew it would be impossible to reach it now. And yet in the room beyond he had medical instruments — a hypodermic syringe and drugs, with which he could stop the killer. Wade Henry took another step toward him as he hung there undecided. Desperation forced him to an extreme measure.

He raised his hand and held it so that light reflected from the facets of his diamond ring into the giant's eyes. The fighter blinked as the little square of light struck his eyes.*

GALE took a short step toward him. Tensely he played the light into the other's eyes.

Again Henry muttered, "*Kill him!*" Now the word was weaker, spoken as

* Professor Gale here makes use of the fact that any glittering or shining object serves powerfully to attract the attention of a subject to be hypnotized. Using the glittering diamond in his ring, he is attempting to so focus the attention of the giant upon a single object, that hypnotism will be simply a matter of dominance over a will power from which a great portion of resistance has been removed by fascination. It is the same method used by snakes to charm birds, enabling them to strike while the fascinated victim is made incapable of summoning initiative in time to escape.—Ed.

though he said it to try to remind himself of something. For a long minute the two stood there face to face, six feet apart, neither moving a muscle.

Then Gale said quietly: "Your arms are tied to your sides. You can't lift them."

"Can't lift them," repeated the madman stupidly. Then he frowned, and his big shoulders hunched as though he were straining to raise his arms and found them tied down. His forehead glistened with sweat.

"You're going into the other room, now, and lie down on the white table in there," Gale said positively.

The fighter nodded dumbly and mumbled, "Other room." He turned and shuffled through the door. A breath of relief came from the scientist's lips. The mind of the brute had been brought under his domination, by the use of the simplest of all hypnotic devices. A complex surgical operation, even, could be performed on him now without his waking up.* A tiny piece of diamond had made the difference between life and death to the professor.

He hastened through the door as the

giant shambled in and crossed the dark laboratory. He turned on a light and the stage across the big, white room was illuminated. Obediently the fighter lay face down on the operating table. He was so big now that he completely hid it from view as he lay there, his arms

and legs hanging over loosely.

The professor's breath came sibilantly as he crouched over the creature and swung the great diamond refractor above his head. He rushed to the switchboard at the base of the triangular glass shield and set a number of indicators. He fixed electrodes to every joint—elbow, shoulder, knee, ankle—so that the changes taking place in the brute's body would not



The fighter blinked at the diamond

cause stiffening of the articulations. At last he shoved in a large knife switch. For a moment the lights dimmed, then the laboratory was filled with the sharp crackling of generators and the musical hum of vacuum tubes joining in a chorus of high and low voices. The room was filled with the eerie glow of the mighty vacuum tubes as brilliant green light flamed up inside them.

cases there is danger that analgesia (insensibility to pain) may not be produced, and the subject may suffer under the knife, though unable to move or tell of his agony. G. H. Estabrooks, Professor of Psychology at Colgate, states his belief in the *Scientific American* that the greatest value of hypnotism in medicine today is in curing such afflictions as alcoholism and drug addiction, since ether and like anaesthetics are more positive in their action for ordinary purposes.—Ed.

* Hypnotism has been employed as an anaesthetic in surgery for many years, beginning with Reclamier's experiments in 1821. Among the most prominent of hypnotist-surgeons are Esdaile, Forel and Le Fort, who have operated successfully on subjects they had previously mesmerized frequently before the operation. However, Moll, in *Hypnotism* (Charles Scribners Sons, New York), states that such operations are successful only when the patient is one who is accustomed to being hypnotized by the surgeon in charge. In other

Now he turned the rheostat on full, sent the scarlet ray darting through the prisms. The new refractor at the bottom of the quartz glass pipe condensed the broad beam into a needle-like point of brilliance. Gale's bony fist gripped the controls and swung the apparatus directly over the fighter's head.

His lips were tight against his teeth as he sucked in agonized breaths. In the weird green light his eyes looked sunken, like those of a skull. Each line in his face seemed to be carved deeply, for he was straining every nerve and every atom of his being in this final heart-breaking effort. The stakes were big in tonight's game—sanity, for one man; life, for another, if a still worse monster resulted from the untried ray.

Two long minutes passed while Harley Gale hunched over the inert body like some medieval alchemist. The angry arcing of electricity in the power room kept up its ominous background. The mighty vacuum tubes hummed softly behind the scientist. Over everything flickered the ghostly light.

PROFESSOR GALE lurched back in sudden shock as the fighter stirred and groaned. He started back, then stopped dead as the giant slowly shoved himself up and turned his bearded, slack-jawed face to him. Recognition did not show in the horrible visage.

A hundred fears came to Gale then. Fears mingled with regrets—regrets that he had not chained the man down while he worked, that he had not tried again to prove the ray before taking this risk, that he had ever started the whole business. For there before him he saw a creature bereft of his reason, with no civilized expression traced on his features to distinguish him from the animal.

In the next moment a quiet, familiar voice jarred him. "What've you been doin' to the joint, Professor? Don't look the way it did before."

A glad cry broke from Harley Gale's lips as he realized it was the fighter who had spoken! Spoken in the same voice he had owned a month before, when he was sane. He rushed forward and turned off the switches, then took off the electrodes.

"Say, where'd I get these rags?" Wade Henry demanded. Then his mouth fell open. "Don't tell me I been out since I got kayoed?"

"You've been out exactly a month," Gale said shakily. "And you didn't get kayoed—you won. You not only beat Bannock, but you laid out a dozen policemen, four seconds, the referee, and a few others!"

The fighter's face was startled and incredulous as he listened. "Say, I—I done it up right, didn't I?" he grinned



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through his whiskers.

"You did," Gale agreed. He felt suddenly weary, for the past month had told on him. He had been going on nerve alone for days, and now that nerve was no longer needed, his body was burned out. In a tired voice he went on, "There's three-quarters of a million dollars waiting in the bank for you, after we straighten out a little trouble. And Henry—you've made it possible for me to give humanity one of the greatest gifts it has ever received.

You were as important in this work as—" The weary voice trailed off.

The heavyweight champion stared at him for a moment, and then blurted, "What's amatter, Professor? Don't you feel okay?"

There was no answer, except for a soft bump and a slight snoring sound. But the sound of the snoring was answer enough that Professor Gale felt okay. For he was sprawled out flat on his back, enjoying the first sound sleep he had had in many weeks.

Coming Next Month

THE MONSTROSITY OF EVOLUTION

Dr. Raymond Traffern discovered the secret of hastening evolution, but he failed to take into consideration one vestly important factor—then when he realized the terrible truth, he was impotent in the grip of a superior mental power, bent on creating a new race.

By
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The ATOM



Radiant fire burst forth with supernal brilliance

SMASHER

By GORDON A. GILES

John Tarkton invented Atomic Power, then died, a victim of his own creation. To the world he left a potent heritage of unleashed power; to Dr. Henry Lewis a terrific burden of responsibility

CHAPTER I

An Amazing Invention

MILTON SANDER read the title of the thin sheaf of neatly-clipped typewritten sheets without recognizing any special meaning in the words: "*Basic Mass-Energy Conversion Unit.*"*

As recording clerk of the Bureau of Patents, he saw many enigmatic titles that in most cases camouflaged something invented and patented a hundred times before. Quack inventors were always trying to slip something over on the Bureau, not realizing that

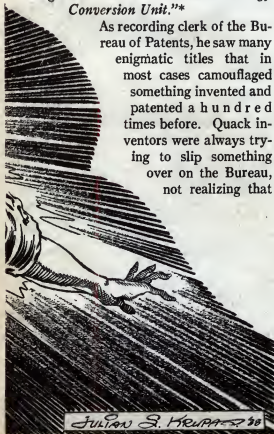
the department had hundreds of well-trained employees for the purpose of preventing duplication of patents, and to weed out utterly worthless mechanisms and devices that worked only in the originator's optimistic mind.

A Patent Bureau clerk's job was supposed to be intriguing, but Sander often found it boring. He yawned and glanced at the clock. Fifteen minutes to go before quitting time:

Each day seemed longer and more tiresome to Sander, as he endlessly recorded patent applications, spurious and otherwise. If only he had enough money to throw up the job and try easy living for a change. Sander was not particularly industrious, but he was ambitious. The stock market appealed to

* The phrase used here is in reference to the rule first formulated by Einstein in 1915. It was a natural deduction from the phenomenon of radio-activity, or the breakdown of certain atoms into simpler atoms *with release of energy*. Such conversion of mass into energy occurred only in nature and man seemed unable to hasten or alter the process.

Since that time, science has sought the means to unlock the vast storehouse of energy bound in matter, and has had some measure of success. Noteworthy among these are the experiments with the cyclotron, or atom-smasher, built by Dr. M. A. Tuve and his colleagues, Drs. N. P. Heydenburg and L. R. Hafstad at Carnegie Institute of Washington, and also experiments by Drs. R. G. Herb, D. W. Kerst, and D. B. Parkinson, of the University of Wisconsin. Even the popular imagination has been fired by this golden dream of unlimited energy and it has been labeled Atomic Power.—Ed.



him as a game worth while—if he only had money to start the ball rolling.

Disinclined to do any more work, Sander idly began reading the author's notes heading his diagrams and formulae.

"Atomic Power."

Sander chuckled aloud cynically as he read those two words. "So *that's* what he meant by that pretty title! Another crackpot. Perpetual Motion machines used to hold the application record, but I think lately Atomic Power engines have taken first place. When will these poor fish learn you can't get something for nothing?"

He read on, to kill time.

"Theoretically, it is possible to transform matter completely into energy.

"It is with some pride, therefore, that I submit herewith the plans and complete specifications for such a power unit, guaranteed to deliver 500 horsepower from a pound of sand. The energy is released almost entirely as infra-red heat radiation, suitable for steam engines. The efficiency of this unit cannot be increased beyond the point specified because of the danger of explosion."*

Sander chuckled. "500 horsepower from a pound of sand—I'll be blown! This fellow has imagination—should write stories. Wonder what a handful of common dirt would do. Run a car from here to Halifax, I suppose."

Sander yawned again with one eye on the clock and saw he had five minutes to waste yet. He glanced over the carefully filled out application blank.

"John Tarkton, Ph.D., former Pro-

fessor of Atomic Physics," mumbled Sander as he read. "22 Vine St., Jamesville, Indiana. Age 48. Unmarried. Retired; private research."

Sander sighed. "Retired. Must have money. And the poor sap putters around in a laboratory, inventing air castles, when he could play the stock market and really do things! Professor Tarkton, you're a nitwit, a—"

His eyes caught a note at the bottom of the application in the "remarks" column. It read: "In the event of my death in the interim, all patent rights are to be turned over to Dr. Henry Lewis, 1480 Grand Ave., Oak Park, Ill."

Sander snorted. "Huh, the man actually *believes* he's got something here, like it was *sure* to be accepted for patent. But then they all do. I'll never forget the day that chap stormed in and threatened to sue the government for turning down his gadget for making gold out of brass. This guy—"

Sander broke off and jumped up with alacrity. Time to go at last. He tossed the sheaf of papers in his "no-rush" basket, for entry sometime the next day. He left, milling out of the building with hundreds of others.

That evening, alone in his room, Sander devoured the stock market reports in his daily newspaper, mentally counting the winnings he had made with non-existent money.

Suddenly he sat bolt upright. His eye fell on an obscure item buried on page 19.

"Jamesville, Indiana. At four P.M. today a gigantic explosion destroyed

* The total atomic demolition of a gram-mass (of any element) would yield 1,000 horsepower for four years. This quantity of energy almost staggers the imagination. However, science has so far been able to release only infinitesimal amounts of it. Elaborate machinery and energy greater than that extracted is necessary for the process.

An Atomic Power heating unit, with an effi-

ciency of only .0004 would still get ten times more energy from a pound of stone than modern steam-engines get from a pound of coal. Such a unit would be useful for heavy-duty work immediately, and would undoubtedly supplant all other generators of power in a few years. It would automatically reduce by ten times the cost of all power production.—Ed.

the laboratory-home of John Tarkton, probably from some dangerous experiment. He was known to be in at the time of the catastrophe, but his body was not found due to the violence of the explosion, which left not one stone on another. Fortunately, the nearest house, a block away, suffered no more than shattered windows. His will, in the Main Bank, states that he has no close relatives and leaves his entire estate to Dr. Henry Lewis—"

Sander jumped up and began pacing the room, thinking rapidly. Today he had read the submitted plans for an Atomic Power process, by this man who now lay dead. But more remarkable than the coincidence was the manner of his death.

Explosion!

"Lord!" breathed Sander. "That fellow has—had—the real thing. *Atomic Power!*"

Though not a scientist, Sander had enough native intelligence to realize that a workable Atomic Power process was priceless. The paper those formulae and diagrams were written on was worth its weight in radium!

"Just think," mused Sander, "on my desk right now lies a discovery about like radio, or X-rays. It'll sure turn things topsy-turvy in the industrial world, with power produced ten times cheaper than now. Lucky stiff: Dr. Henry Lewis. He gets the patent rights and a mint, right in his lap!"

Envy radiated from Sander's voice. "What I couldn't do with money if I got that break!" He shrugged. "Oh well, maybe I'll win the Irish Sweeps next week."

He turned back to the newspaper, but could not seem to get his mind off that strange coincidence, and its results.

As though he had been stabbed, he suddenly turned pale and began to tremble like a leaf.

Fool! Why hadn't he thought of it

before? No one really knew the plans were on his desk!

Sander lay awake most of that night, feverishly scheming. Next day, at his desk early, he slipped Tarkton's manuscript into his coat pocket. That night he was again awake, laboriously typing the notes and transcribing the mathematical formulae of the dead scientist's papers.

Sander had made up his mind to play opportunity to the limit. The plans had two possible markets, both as an industrial prodigy and as a military secret, for what could explode once could explode again! He would sell them to the undercover agents who were always ready to pirate useful inventions. Sander saw his chance to play a double game and come out winner twice.

A week later Milton Sander had departed for Europe, three hundred thousand dollars to the good. Among the many courses open to fate in this matter, it had taken one of the strangest. The plans for Tarkton's invention were in the hands of two unscrupulous foreign interests—

CHAPTER II

A Tremendous Responsibility

DR. HENRY LEWIS opened the packet of registered mail in deep wonder, noticing it was from Jamesville, Indiana. In it were three items. The first, a small wooden box that contained something heavy, was marked "Do not open!" The second was a large envelope bulging with papers. Last he picked up a smaller envelope with his name written across it and marked, "Please read this first!"

Though he realized these were from a man who was dead, and who had been his friend, Lewis could not help smiling a little at the eccentric nature displayed.

Tarkton had always been a secretive, mysterious sort.

The day before Lewis had received a letter from the Main Bank of Janesville, informing him that Tarkton had been killed, and that they were forwarding certain items he had left in their care.

"Damn fool!" Lewis had muttered sorrowfully, after the initial shock was over, "I knew he'd blow himself up some day!"

Now, Lewis gazed down at these last messages from his friend and sighed deeply. They had not seen much of each other in the past ten years, but a lasting bond of friendship forged in college days had never been broken. They had corresponded regularly, Tarkton telling of his researches in subatomic physics, Lewis telling of his academic work.

Picking up the envelope so meticulously marked for his initial attention, Lewis opened it and read the contents. Amazement came into his face with the first few lines and remained rooted there to the end.

Lewis:

You are reading this letter only in the event of my death!

Yes, my death, Lewis, for I cannot stop now and the trail ahead lurks with danger! I have reached a milestone and beyond beckons a vast new field of exploration!

Lewis, my results were crowned with success, breath-taking and sudden, seemingly all at once. Yet I realize it was from the twenty years of effort I put into this task. But that is the way of scientific discovery—through years of trial and error, bitterness and defeat.

Six months ago it came to me, and I realized I had—ATOMIC POWER!

I did not inform you, for you are the rankest of skeptics, though my dearest friend, and would have classed it as wishful-thinking.

At any rate, you'll remember my

theory—that the way of disintegrating the atom is to use a resonant gamma-ray frequency to shake it apart, as sonic vibrations will shatter the molecules of gross matter.

I never did put much stock in the theories of the atom-smashing school. They have been taking every subatomic particle they could lay their hands on as artillery to bomb the atoms. But that is like taking the asteroids and shooting them through the solar system at random. The chances of a hit with anything are pitifully small. And they must use more energy to propel their subatomic bombs than is released from the collisions.

Vibration was the true answer. Vibration penetrates everywhere, strikes everything. There can be no misses. Yet twenty years of labor with all conceivable vibrations brought little result.

My obstacle was lack of PURE vibration. The sound wave that shatters a glass is a bell-tone—sweet and unmixed. I had to devise carborundum—silicon carbide—crystal capable of dividing the spectrum of gamma-radiation into infinitely graduated frequencies. Thus I was able to get pure, single "tones" of the gamma-group, and concentrate a great deal of power into them without energy-loss in vagrant harmonics, overtones, and heterodyning cancellations.

I installed this in my vibro-projector and played it on a few grains of monazite sand. After a few shiftings of the frequency, I was rewarded. A puff of heat-energy arose that singed off my eyebrows. I examined the grains spectroscopically and found that the rare-earth metals in them—gadolinium, neodymium, lanthanum, etc.—had vanished! The silicon dioxide base was unaffected.

I made controlled tests with a calorimeter and found most of the energy given off as heat—infra-red radiation. The process is inefficient, no more than .0004, but is still ten times more productive than the burning of an equal

amount of coal.

All these experiments, readjustments, tests, occupied the last six month. Finally, I drew up a set of blue-prints of the vibro-projector and crystal, recorded the mathematics involved, and prepared to send it in for patent.

Of course, the industrial application of this Atomic Power unit will have to be done with extreme caution. I have salted my papers with frequent warnings and notes to that effect. Undoubtedly there will be some unfortunate disasters in the experimental stage, but the technologists and engineers of industry will eliminate them.

Thus, my duty is done. My duty to civilization in this matter. I can now go on with my researches. There are unnameable powers and energies lurking just beyond my reach. Powers that will truly make man the master of the universe! I will seek them!

Dr. Henry Lewis stopped reading for a moment, shaking his head slowly. Just like the visionary he was, Tarkton must plunge onward into the sea he had newly discovered. He had arranged for the patent of the process as a perfunctory matter, and would probably have sold it for a paltry sum if he had lived.

If he had lived! Lewis bowed his head for a moment. Death so soon after victory! It was ironical that this genius could not have lived to see at least the first fruits of his prodigious efforts. Lewis turned back to the letter.

But the trail ahead, my friend, is an uncertain one. Perhaps I will be destroyed in my search for new, secret powers. Realizing this, I decided to conduct my affairs as though I were already gone. I made a copy of my complete researches so far, and you will find them in the large envelope that accompanies this letter. My will has been duly made out, with you as beneficiary, since I have no relatives closer than cousins whom I have never met. The patent application that I am about to mail to Washington is also to go under

your name, if it is my fate to leave this life suddenly.

I have deposited these things with my solicitors, who will conduct these matters if the time comes. Lastly, I am writing this letter which is to be forwarded to you only upon my death.

Yet do not think of this as beneficence, awarded you simply because you are my friend. It is really a great responsibility. I have picked you for your sterling qualities, as the one man I can trust to carry on with this grave affair.

Yes, I repeat—**GRAVE!**

Atomic Power is something perhaps more far-reaching than dynamite, or the invention of the steam-engine. When the patent of my process comes through, it must be turned over to the worldwide Society for Advancement of Science. They alone must be allowed to distribute its plans, **AND CARRY ON ANY FURTHER RESEARCH.** The patent must not get into the hands of one industrial concern, or in the hands of one group of any sort, political, financial, or warlike.

I am entrusting you with this mission, Lewis, in the event I am not alive to do so. The patent application data and date of mailing are noted below. Also a duplicate is in the large envelope.

Perhaps it would have been best for Atomic Power to be buried still-born. I debated the pro and con of it with myself and finally decided its benefits should triumph, if only care is taken. The thing that finally decided me in that course was a chance discovery in line with my subatomic researches. It is this—

Lewis read on, still more amazed than at the previous revelations.

The letter ended:

The use of this instrument is left entirely to your judgment. I deeply hope that you will never have to employ it. That is all I have to say. If you are reading this, I am dead. Goodbye, my friend.

(signed) John Tarkton.

Dr. Henry Lewis, fifty years old and kindly of nature, held the chair of physics at Oak Park University, in which institution he had taught for twenty years. He had always told his pupils, "The advance of science is like a glacier, slow but decisive. Truly great discoveries are made at long intervals. Do not expect what the romanticists call Atomic Power for another century, if then."

Now, after reading the letter from his old friend, Lewis felt the sensation of shock almost as though he had been through a harrowing experience. He was a practical man and did not believe in optimistic day-dreaming about so matter-of-fact a thing as science. He had scoffed in emphatic fashion, in his letters to Tarkton, about the illusion of unlocking the storehouse of power within matter.

Yet here it was, like a bursting bomb—Atomic Power! And he, Henry Lewis, held within his hand the authority to disperse this great discovery to mankind! Authority—and responsibility!

Lewis almost felt himself aging on the spot. Suddenly his sheltered, staid world seemed dissolving around him. He seemed to hear already the slow grinding of immense world events being started. The frightful, inconceivable energies of the atom to be given to a civilization whose keynote was power—and whose methods of balancing that power were none too gentle. The results were not predictable at all.

Lewis tapped his fingers thoughtfully on the box marked "Do not open!" Finally he picked it up gingerly and looked it in his desk drawer. Then, because he was practical, he took out the thick sheaf of papers in the large envelope, rolled up his sleeves and began checking over the mathematical notes. It might be that Tarkton, overworked, had suffered under hallucina-

tion over the whole thing.

Lewis soon saw that there was no bit of illusion to it. The cold, hard, incisive formulae spoke aloud their story to his trained mind. Hours later he was still at it, amazed at the genius displayed. It was two lifetimes of daring research, done by one ingenious intellect.

Lewis was startled to hear the voice of his wife over his shoulder. "Heavens—what complicated looking formulae! What do they represent—the end of the world? It's past midnight—"

CHAPTER III

Atomic Power, Inc.

THE letter from the Patent Bureau said: "No patent application by the title of *Basic Mass-Energy Conversion Unit* has been entered in this office in the past year. We suggest you send a duplicate copy."

Puzzled, Lewis sent the duplicate that Tarkton had provided. It was a month after receiving Tarkton's post-death mission, and Lewis had sent a letter of inquiry, wondering at the delay.

His answer came this time promptly. "A device exactly similar to the one described by you, with the same specifications and formulae, was patented under the title 'Atomic-Power Unit' a week ago. We therefore cannot grant the patent to you."

Lewis clutched at the edge of his desk and read it again with a punch-drunk expression. What did it mean?

"Good God!" he exploded finally. "Someone else stole that patent! Atomic Power is in the hands of some unscrupulous person or group—the very thing Tarkton warned against. I must find out—" He jumped up.

"Where are you going?" his wife asked anxiously.

"To Washington!"

"But, dear, your classes—"

"Hang the classes!"

That night a speeding plane was carrying Dr. Henry Lewis, face set grimly, to Washington. A deep sense of foreboding rode with him. He did not know what had happened to upset the normal procedure of events; did not know of the bland-faced youth lounging in a Parisian Cafe, flushed with wine and money. But Lewis did have the feeling that the juggernaut of fate had taken a sharp twist. How much so he was soon to learn.

First of all, upon arrival in Washington, Lewis spent a day making inquiries at the Bureau of Patents, passing from person to person in the attempt to find out what miscarriage there had been with Tarkton's application. No one had seen or heard of it.

The next day he was finally given an audience with a high official, who crisply asked his business.

"My friend sent in an application for patent for the Atomic Power process prior to whomever it was awarded," said Lewis, half angrily. "I demand—"

"Yes, yes, of course!" interposed the official in a sarcastic tone. "Naturally you and your friend invented it first, and have been cheated!" His voice changed, became cold. "My dear sir, do you realize that you're the hundredth crank who has been here claiming to be the original inventor? It's always the same. Whenever a new, revolutionizing process of one sort or another is patented, a thousand people rush forward with their preposterous claims over it."

"I see," said Lewis thoughtfully. He suddenly realized the magnitude of the forces against him.

"You don't look like a crank," went on the official, in more friendly tones. "If you have any proofs of priority, you

can contest the case in court."

"Thanks," said Lewis, leaving.

He went to a telegraph office and sent a message to his wife at home. "Will remain here for indefinite stay. Letter follows." Then he went to a well-known law firm and began the wheels of court grinding.

"I must fight this out," he muttered grimly to himself, "if it takes every penny Tarkton left me and every penny of my own!"

A year later, after a succession of court cases, it had taken every penny of his combined funds. The powerful interests behind the man in whose name the patent had been issued lavishly poured thousands into their defense. The man was a puppet behind which reposed a huge, mysterious financial group who had their clutches on something they were not willing to let go.

Lewis finally returned home, defeated. His wife could hardly believe it was her husband, so haggard was his face, so bowed his spirit. He said little. He thought much, as was evidenced by long hours locked in his room.

Headlines were in the newspapers a month later. Headlines that startled the world.

"First Atomic Power Engine! To be put in operation tomorrow, after elaborate dedication ceremonies, at Kinsington Cotton Mills. Atomic Power Inc., a new tycoon of the electrical field, announces that it will produce electricity at one-fifth the present cost. Incredible as it sounds, the 'fuel' with which they will stoke their steam-boilers is sand—common sand!"

Editorials appeared in the newspapers that evening, denouncing it as the greatest hoax, or perhaps publicity stunt, in the history of civilization.

But the headlines the next day screamed: *"Atomic Power Engine Works! Using only sand, which was*

sifted down through the fire-box, a steady heat supply was maintained that easily ran the giant electrical generator at full capacity. An invisible ray sprays over the sifting sand, changing part of its atoms into pure heat energy, according to the officials. What the ray is, no one knows. It is the 'secret' of the process. Visiting engineers were baffled and admitted that the process is ten times as efficient as the use of coal."

Again editorials appeared, denouncing it as the greatest hoax, or perhaps publicity stunt, in the history of the world.

But the headlines of the next day shouted: "Stock market in a turmoil! New Atomic Power process threatens gigantic utilities industry. *Atomic Power Inc.*, with secret plants built during the past year, is already supplying current to large factories."

Now the editorials began hailing the discovery as the greatest boon in mankind's history, and predicting an immediate era of golden prosperity.

But the succeeding headlines groaned: "Industrial fabric of nation faced with collapse! Power companies going bankrupt daily. Wave of suicides among financiers who were made paupers overnight. Is *Atomic Power Inc.*, already looming as the number one industry, doing right by its drastic underselling of power?"

Editorials appeared, praising *Atomic Power Inc.* as the liberator of humanity from economic slavery.

But the headlines later said: "Prices rising steadily. Lists of unemployed grow. Ten killed in riot at the Kinsington Mills. Attempt is made to destroy Atomic Power engines."

"Tarkton foresaw something of this," sighed Dr. Henry Lewis, following the news avidly, "if his discovery were not properly introduced into modern civilization. The Lord only knows where all

this will end up. It is harder to stop things like that than start them." He paced his room with a bitter expression. "How did it ever happen in the first place?"

He did not know of Milton Sander. Milton Sander was at that moment holding a gun against his temple, in a shabby room somewhere in Europe. He was penniless. He had played the stock market and was wiped out with millions of others in the stupendous financial crash from across the seas.

He had nothing more to live for. Besides, he somewhat realized that he had been instrumental in the recent course of events. It frightened him also to remember that he had sold a copy of the plans to a certain Oriental power. Milton Sander passed from life, with a bullet in his brain.

Events moved swiftly over the world that had just inherited Atomic Power. *Atomic Power Inc.*, in the next year, inexorably made itself the number one financial giant of the world's industries. The formerly great coal, oil and water-power utilities fought a losing battle—crumbled into history. The new engine quickly spread into Europe and caused the same misadjustments, blunders and riots at first.

CHAPTER IV

Disaster

DR. HENRY LEWIS sat in his home with a secret burning within him. He sat quietly, listening to world news over the radio daily, and reading the newspapers. He had grown haggard in the past two years since the death of Tarkton and the birth of Atomic Power. What would all this lead to? He waited—

As his only means of support, he con-

tinued teaching at the university, but became so preoccupied that his students learned little. To Lewis it had all become trifling—all except the fate of Atomic Power. At home his wife, with a rare understanding, sat by his side silently, also waiting—

Feeling as though he were a disembodied spirit hovering high over earth and watching its struggles, Lewis began to breathe a little easier. Perhaps all would be well after all. Perhaps Tarkton's fears had been unfounded.

Then—it happened!

But in the most surprising, unexpected way Lewis could have conceived. He first heard the item over the radio, given by a shocked announcer.

"Unconfirmed report that the people in the city of Seattle are dying off at a tremendous rate! This is attributed to the presence of a fleet of aircraft—believed to be Asiatic—which suddenly appeared over the city and began circling it hour after hour. But there is no visible indication that they are causing thousands upon thousands of people to die with their flesh burned away from their bones. Nor have any fires broken out. State militia and the Pacific Navy have been ordered to the scene."

Lewis turned pale, horrified. Flesh burned away from the bones, like with radium! That meant gamma-rays! And gamma-rays meant Atomic Power! Nervously he waited to hear further reports of this mysterious menace.

Three days later the full story was out. The enemy from across the waters was waging an unannounced war of invasion on America. Their aircraft had been equipped with some terrible new weapon that shot out an invisible beam of death. It had little or no effect on inanimate matter, but instantly cooked human flesh away from the bones.

With this weapon, the enemy had in

three days achieved an unprecedented coup. In two days of continuous use of their death-ray, they had decimated the entire population of Seattle. And they had sent a fleet of American aircraft, rushing to the defense of the city, to crashing doom.

Now, on the third day, Seattle was already being populated with Orientals. All had apparently been planned to the last detail. A fleet of merchant vessels bearing hundreds of thousands of aliens, had secretly steamed across the Pacific and arrived just after the aircraft had done their work. These Orientals were now calmly cleaning up the city and taking it over, without a dollar's loss in material damage.

Lewis groaned, realizing the diabolical thoroughness of it. Invincible, the lethal fleet would go from city to city, ridding each of its inhabitants. Across the Pacific would come armada after armada of Orientals, to take over the cities. When the American naval fleet elected to interfere, the enemy naval fleet would engage them. Armed with the new weapon, they would be victors, inevitably. In a few months the western coast would be in foreign hands. Then they would creep inward, day after day.

Lewis' shoulders sagged in despair.

Tarkton had been right after all. Every new scientific discovery is turned to warfare sooner or later. All this must have begun at the time two years ago when the patent for the basic Atomic Power unit had slipped out of his hands. The enemy, whose agents must have stolen a copy of the plans, had planned conquest. Instead of concentrating on the invention's industrial uses, they had immediately applied it to the military. They had somehow found the way to release Atomic Power as gamma-radiation rather than heat-radiation, a sim-

ple enough shift in the spectrum scale.*

With this Herculean weapon against which the world had no defense, the enemy could not be stopped. They might well conquer all earth! Or if the defending race also adapted Atomic Power to the gamma range, a truly titantic war would result, and that could not be a lesser evil. Humanity would lose either way—and civilization.

A dark, terrible future faced mankind. *Atomic Power had run wild!*

Lewis, after hours of these thoughts, stood up, eyes burning. "This is the time!" he said so solemnly that his wife shuddered.

He went to his room, unlocked his desk drawer. He took out the box Tarkton had sent him two years before. Carefully Lewis broke the seals and took out the shining, heavy little instrument within. It consisted of a small, thick quartz-glass vacuum tube holding a beautiful crystal of carborundum. The cathode was aimed directly for the glittering crystal. Beside the tube were several intricate coils of insulated copper and an electromagnet.

Lewis set the compact instrument on the table and stared at it wonderingly. Then he picked it up again and strode like a robot to the door of his home. His face was set in grim, twisted lines. His wife, seeing something in his eyes, sobbed brokenly at his shoulder. Lewis kissed her tenderly, left without a word.

It was late at night. He walked to the university, had the nightwatchman let him in, unlocked the door to his private laboratory. He set the instrument on the workbench and attached two heavy cables to its leads. The

terminals of the cables at the switch panel, was marked "20,000 volts."

Eyes fixed on the instrument with an unblinking stare, Lewis fumbled in his coat pocket and pulled out Tarkton's last letter. He read again that portion that had been his secret from all the world for two years. Said Tarkton from his grave:

In the box is a small but important instrument. My researches in gamma radiation, with the carborundum crystal, showed me a remarkable thing. There is a certain vibration which, with sufficient power behind it, will shatter every crystal of carborundum in the world! Shatter it into pure radiation—with an explosive effect unparalleled in chemical explosives.

That instrument is set to produce this certain vibration. It is in your hands. If you are faced with a stupendous emergency, in which all the world and civilization are involved, use the instrument, giving it 20,000 volts. It will instantly shatter every carborundum crystal on earth. Every Atomic Power device, based on my unit, will then be rendered useless. It is a perfect check-mate to Atomic Power—if it runs wild!

The explosions of the crystals will of course take many human lives among those within range of their blasts. Therefore, you must not take these lives unless you are thereby sure of saving many more lives in the future!

Lewis did not ponder this long. There might be hundreds, perhaps thousands of lives lost through the use of this instrument now. But there would be millions upon millions lost later, and a civilization crushed, if he delayed. It was a Jovian choice, with only one answer.

Face set frozenly with determination, Lewis stepped to the panel and knifed a gleaming switch. Twenty thousand volts of energy sang lustily as they surged along the cables and through the

* The spectrum scale of radiation is a scale of vibratory range adapted from the spectroscopic scale of color, the visible portion of vibration waves. It is assumed that all vibrations are contained in a continually graduating scale, of which color, sound, X-rays, radio waves, cosmic rays, etc., are all specific ranges.—Ed.

coils of the instrument on the table. The relays of the electromagnet clicked softly.

Lewis stepped before the instrument, poised his finger over the key that would send current leaping through the tube. A ravening sphere of super-radiation would burst from the crystal and bubble over the earth in a split second. In that same split second, every other crystal of carborundum in the world would dissolve into explosive radiation.

He moved his finger closer to the key. The hair on the nape of his neck stiffened. Weird, incredible moment. Human lives sacrificed—and saved—at the touch of his finger.

Fate and Dr. Henry Lewis stood face to face.

Then his finger jabbed firmly down on the key. He saw nothing of the supernally brilliant globe of radiant fire that burst from the tube and touched off similar globes of force all over earth.

END

HE LIVES—BUT

HE DOES NOT BREATHE

You stare wide-eyed at the momentous experiment proceeding on the platform here in the lecture hall of the Anglo-American Medical Society. The volunteer is a young fellow, tense and a little frightened but mustering a smile as he gives the experimenting surgeons the signal to shut off his air so that he can no longer breathe.

The man beside you whispers tensely, "You watch his hand. If he has any feeling of suffocation, he'll signal."

The pale young volunteer seems smiling with his eyes; the rest of his face is covered by a rubber hood. His hand and arm are held upright; if anything goes wrong with him he will drop the arm.

One of the two surgeons stands at an oxygen pressure tank. The oxygen is passing through a flexible tube to an injection needle. The other surgeon is now inserting the hollow needle into the young man's neck.

"He lives, but he does not breathe!" You murmur it with awe. He is not breathing now. The life-giving oxygen is going directly into his blood-

stream; another needle now has been inserted into a vein of his arm; his blood is running out, through an absorption train to remove the CO₂.

Fascinated, you sit staring through what seems an eternity. Five minutes . . . Ten minutes . . . Half an hour. The young man's hand remains up. His eyes above the rubber hood still seem trying to smile.

Then at last the experiment is over. The Chief Surgeon says to his little audience:

"You have witnessed, gentlemen, the greatest step that has yet been made in the treatment of near-death pneumonias, extreme pulmonary tuberculosis, and the resuscitation of the drowned or gassed. Temporarily—for how long a period we do not yet know—we have dispensed with the lungs!"

Does this sound incredible? It has been done already with a dog and a cat. Dr. I. Singh, of Rangoon, demonstrated it for a group of scientists in London under the auspices of the Cambridge University Laboratories of Physiology. The animals dispensed with lungs for sixteen minutes and showed no ill effects. In the British Medical Reports it was stated that the experiment soon would be performed upon humans. All of which was authenticated by the *Lancet*, official organ of British Medicine.

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HORROR'S HEAD

By Lieut.
JOHN
PEASE



"Comrade Poshkin," Grodski addressed the bearded head, "I have made you immortal!"

Saved from death by Dr. Nicholas Grodski, noted Soviet surgeon, Ivan Petrov achieved a miracle of surgery. But the head of Comrade Peshkin went mad

CHAPTER I

The Soviet Tribunal

HIS steel-slender hands tied behind his back, but his black-moustached fine-featured head held high, Ivan Petrov defiantly faced the three Judges from Leningrad, who sat behind the long red-cloth-covered table on the low platform at the end of the hall. On the wall beyond them hung two enormous bunting-draped portraits of Lenin and Stalin, flanking a red flag, bearing the hammer and sickle.

The Judge on Petrov's left was squat and repulsive, with keen beady eyes in an otherwise bland face. His hands,

spread out upon the table, were short and pudgy. From pictures which Petrov had seen in copies of *Izvestia* and *Pravda*, he recognized this man as Dr. Nicholas Grodski, noted Soviet surgeon, reported to have built up his reputation on the work of his less political-minded associates and subordinates.

There had been rumors of strange experiments, some of them of an unmentionable nature, Petrov knew, and his presence here on the Judges' bench indicated his political power.

The Judge in the center, whom Petrov had been told was Commissar Bucholtz, was young, debonnaire, and handsome in a sort of heavy fashion, with wavy brown hair and flashing eyes. His large though carefully groomed hands constantly toyed with a crude



rubber-stamp bearing a skull-and-cross-bones.

The third member of the tribunal was a nondescript individual with a heavy black beard, named Peshkin.

Commissar Bucholtz snapped, "Ivan Alexandrovitch Petrov, you are charged with being a friend of the Supervisor of this village, now under sentence of death for treason."

At the mention of the prisoner's name a crafty expression crept over Grodski's bland features. The prisoner's clear gray eyes fixed without fear upon the handsome face of his accuser.

"Tovarish Commissar," he replied in level tones, "The Supervisor was merely a patient in my hospital. I am loyal to Russia. I do not concern myself with politics."

"Petrov," snapped the Commissar, "there is no Russia! What once was Russia is now the Soviet Union. And it is the duty of every Russian to concern himself with politics—on the proper side, of course."

He leered, and turned to the bearded Peshkin on his left, "But we waste time. This person standing before us is obviously no working-man. Shall we apply the stamp to his papers?"

Peshkin nodded, and a yellow-fanged grin showed

through his black beard.

"Just a moment, Comrade Commissar," interposed Dr. Grodski, laying a pudgy hand on the arm of his superior. Then to the accused, "You are the son of Alexander Petrov, are you not?"

"Is that a crime?" Ivan flashed.

Grodski shrugged his ponderous shoulders, and his fat features broke into a fatuous grin, although his little pig eyes remained keen. "Your father was surgeon to the Tsar. Later he was one of those followers of Denikin to be captured and executed, if I remember rightly. But perhaps you inherit your father's ability, without inheriting his—ah—unfortunate political prejudices.

Are you the young Petrov, whose researches in brain-surgery have recently appeared in print?"

The prisoner nodded.

"We are wasting time!" again interposed Commissar Bucholtz, pounding his death's head rubber-stamp upon its ink pad, and then holding it poised expectantly over the warrant on the desk.

"I vote for death," rumbled Peshkin through his thick black beard.

But once again Grodski laid his pudgy paw upon Bucholtz's arm. "Parole him to my custody, my good Comrade Com-

The story "Horror's Head" was inspired from Walter Duranty's Moscow Letter, New York Sunday Times, June 24, 1928

Moscow Doctors Keep Severed Head Alive Four Hours

WALTER DURANTY

(by special wire to the Times)

MOSCOW, June 24.—That a decapitated head can live, that its eyes can blink and its throat swallow four hours after being severed from the body, savors of "black magic," but that experiment was successfully carried out in the Moscow Brain Institute this week.

The subject was a dog, but Professor Chichulin, who accomplished the miracle, declares it equally possible with a man.

Before a young American physiologist, Dr. Horsley Gantt of Baltimore, they proceeded with the experiment, which is of great interest to humanity for three reasons:

First, it permits a careful, detailed study of the processes of death throughout the body.

Second, it allows a study of the brain as an individual organ isolated from the rest of the body.

Third, through a blood-pumping machine, it points the way toward a hitherto impossible operative treatment of heart disease, which claims the greatest number of victims among elderly people.

missar," he wheedled. "I can use him."

"Very well, Doctor," snapped the Commissar, shoving the file of papers over to Grodski with a grimace of irritation. "Release the prisoner. Next case!"

And so Ivan Petrov was permitted to visit his home and hospital under guard, to pack up such of his belongings as had not been stolen during his brief incarceration. Then, when the blood-purge of the little village had been accomplished, he traveled back to Leningrad with the three Judges.

He did not ride with them, however, in their first-class railway carriage, but with the squad of common soldiers who served as their bodyguard, which however he accepted with an amused tolerance, tinged with relief. For, after all, he was not only alive (which was quite something in itself in this topsyturvy world) but also was headed for interesting scientific work under the great, though repulsive, Grodski.

When the train reached Leningrad, Dr. Grodski bade a warm farewell to the dapper Bucholtz and the black-bearded Peshkin, picked up Petrov from among the soldiers, and waddled over to a cab. He directed the driver to take the two of them to an address on the outskirts of the city.

"Well, my dear Petrov." He smiled ingratiatingly, as the cab bounced over the cobblestones. "You doubtless would like to know why I spared your life. I always had a great regard for you—ah—late father. I do not share the general proletarian prejudice that brains are essentially antisocial."

"After all," Petrov interposed, "did not even the great Lenin himself say: 'Without science there cannot be communism?'"

"Excellent! Excellent!" Grodski replied, beaming. "I must remember that quotation. I shall report you as rely-

ing upon the wisdom of our dead teacher. It will go well with your record. 'Without science there cannot be communism.' Um!—Ever hear of Professor Chichulin of Moscow?"

"The brain specialist? The man who made a dog's head live for four hours, completely severed from its body?"

"Exactly. But Chichulin did not go far enough. He lacked both the technique of the old tsarist intelligentsia, and the verve and enthusiasm of youth. He tried to persuade a young American surgeon named Horsley Gantt to stay and work with him, but Dr. Gantt refused and returned to America. I too lack what Chichulin lacked, but now I have you to supply that double want. Do you see?"

"I see!" Petrov's keen gray eyes shone. "Given equipment and co-operation, I believe that I can duplicate all that Chichulin has accomplished, if that is what you desire."

Grodski's fat face clouded slightly, and there was veiled menace in his level tone as he interposed, "*We* can accomplish, my young friend. *We* can accomplish."

"Oh, I beg your pardon, Sir," Petrov replied, genuinely embarrassed. "I am afraid I let my enthusiasm get the better of me. I shall be glad to work *under you*, Sir."

Grodski's fat face beamed, but his little black pig-eyes still remained inscrutably narrowed.

The cab stopped in front of a rather pretentious brownstone front. As the two passengers got out, Grodski indicated the dwelling with a wave of one pudgy paw, saying with a tinge of pride, "Comrade Stalin permits me to live here. You see, he too appreciates genius. What was it that Lenin said? Oh, yes. 'Without science there cannot be communism.' I must remember

that."

He flashed a card of identification at the cab-driver, led the way up the flight of brownstone steps on the front of the building, and rang the doorbell. After a considerable wait the door creaked open. On the threshold stood a radiantly beautiful girl with blue eyes and golden hair. Petrov gasped, and his gray eyes crinkled with appreciation.

"My daughter, Katerina," Grodski explained. "Katya, this is young Dr. Ivan Alexandrovitch Petrov, who will stay with us for a while. He is to be my laboratory assistant."

The girl ran her clear blue eyes appraisingly over the slim virile figure of their guest. Smiling, she curtsied and stepped aside. Grodski and Petrov entered.

Petrov did not see Katerina Grodski again that afternoon, for her father was too eager that work should start at once on the great experiment. Accordingly, as soon as the two men had stored their belongings, they set out together for the Clinic.

Here they first read and abstracted all the accounts which the library contained of the work of Professor Chichulin.*

"Listen to Chichulin's statement of objects," said Grodski. Then he read aloud: "'One, to permit a detailed recording of the processes of death, much slowed-up for this purpose, by my ex-

periment; two, to allow a study of the brain as an individual organ, isolated from the rest of the body; and three, to investigate the possibilities of artificial circulation of the blood, perhaps eventually applicable to human beings, especially those with weak hearts!' What absurd, what inadequate objects! I shall go further." Grodski rubbed his fat hands together. "I shall keep a dog's head alive indefinitely, perhaps even beyond its normal life-span."

Petrov, seated across the reading-room table from his patron, leaned low and reverently crossed himself beneath the table.

Fortunately Grodski did not notice. He continued, "Well, my young friend, what do we need for my experiment?"

"A complete set of scalpels, forceps, clamps, and so forth. Mine were all stolen, while I was in jail. For our blood-pump, I believe that I can make over a small vacuum-pump—there should be one available somewhere in the Clinic. And how about a trained nurse?"

"My daughter Katerina has often assisted me in operations."

"Excellent!" What a charming assistant the golden-haired girl would make! "Where are your laboratories?"

"Here in the Lenin Clinic. But do you not think it would be better to transfer them to my home? Otherwise certain of my jealous colleagues at the Clinic might steal my ideas, perhaps even get ahead of me. There is a large vacant room at home which we can use. It has running water."

"Even more excellent!" This would insure Katerina working with them.

CHAPTER II

A Broken Promise

SO an experimental biological laboratory was set up in the brownstone

* The work of Professor Chichulin in preserving a dog's head in a living state was accomplished by using a pump and a special re-aerator of his own design to circulate and condition the blood stream. This pump was attached to the principal veins and arteries of the neck. The capillaries were sealed off with paraffin. For over four hours he succeeded in keeping the severed head alive in a humid atmosphere.

The animal, according to all evidence, did not know that it was dead, for it was able to open and close its eyes, and to bite and swallow food—futilely, of course, as the food fell out of the back of its throat. Also it even pricked up its ears whenever its name was called.—Ed.

dwelling which housed the Grodskis. Stray dogs were easily obtained for a few kopecks each from the equally stray children who roamed the metropolis. Katerina proved a willing and able assistant. Dr. Grodski himself, in spite of his fleshy flabbiness, possessed a surprising degree of facility in those pudgy hands of his.

But the ideas and the technique all came from Ivan Petrov, though the young man always took pains to put the words into his patron's mouth, and to give him the credit for everything. This he did, not only from a sense of loyalty, but also because he was genuinely glad to contribute whatever he could to the political advancement of the father of the charming Katerina.

The girl and the young scientist worked together with perfect teamwork, and when off duty spent much of the time together. They attended such meager diversions as Leningrad afforded: strolling along the banks of the Neva, visiting the historical sites, including the Hermitage (former palace of the Tsars) and its famous paintings, attending lectures and educational movies. But mostly they just sat together and chatted in the evenings.

Dr. Grodski at first tried to rush the laboratory work with a feverish eagerness quite out of keeping with the sluggishness of his gross obesity; but his protege insisted that they must "make haste slowly"; and Grodski, pleased with Katerina's growing influence over the young man, let matters take their course.

It was some time before they progressed even as far as the reported progress of Professor Chichulin. Their chief difficulty lay in the dilemma introduced by their attempts to reerate the blood of the dog. *Without* plenty of fresh oxygen for the red corpuscles to soak up and transmit to the living cells

of the head, those cells would quickly wilt and perish. *With* plenty of oxygen, the corpuscles would coagulate, clot, and clog the blood-stream. Then, too, there was the problem of feeding the blood.

Both problems Ivan Petrov solved simultaneously by means of permitting a thoroughly oxygenated serum to ooze into the blood-stream by osmosis through a thin parchment diaphragm. This invention enabled them to beat Chichulin's record by two weeks' life for the severed head.

"The next step is immortality," cried Grodski, beaming. "I have it all figured out, but let's see if either of you young-folks can guess my plan."

"I am sure, father, dear, that I cannot," said Katerina, glancing at Petrov with a slight nod.

Petrov took and patted her hand. Then smiled happily, and turned to her father. "I have learned, Sir, to follow your mental processes so well, that I *can* guess. When you sever the next head, you plan to cut extra long flaps of skin, and then sew them across the base of the skull and let them heal there. This will solve the problem of the gradual creeping decay which we have encountered at that point.

"Our other difficulty has been due to the inevitable and normal death of the blood corpuscles. In a living animal, these are steadily replaced by new corpuscles bred in the marrow of the long bones. It is your plan to duplicate this breeding in test-tubes. Am I not right, Sir?"

Katerina flashed Petrov an admiring glance from her blue eyes, and gave his hand a squeeze, as her father, his round face glowing, replied, "My young friend, you have guessed my ideas exactly."

So the three of them put these plans into effect. After a few false starts,

the plans worked to perfection.

Dr. Grodski was jubilant. "Oh, you just wait until that Professor Chichulin hears of this! He will be green with envy!" Then sobering, and a crafty expression taking form on his loose lips, he continued, "But not yet. Not quite yet. We must prove our complete control of this problem, before we disclose our secret to anyone."

That evening over the samovar and cigarettes, when Grodski's usually sallow features were glowing with triumph, Petrov considered the occasion ripe for an announcement. Sending Katerina from the room on some pretended errand, he turned to her father and said, "Dr. Grodski, I believe that I have demonstrated to you my loyalty to Russ—to the Soviet Union, and my ability as an assistant to yourself. May I have permission to pay court to your daughter?"

Grodski leered and, leaning over, patted Petrov's arm with one fat hand. Petrov tried not to wince or grimace.

"My dear young friend," said Grodski, "this is not Tsarist Russia. Children belong to the State, not to their parents. The place to ask is at the Registry, not here. Katya and you are both free citizens, comrades of the Republic."

"I know, I know. And I meant no disloyalty to the State by asking. But I should like your approval, nevertheless."

"You have it, my boy, and gladly. We have been workers together in a great cause. This shall bind us three together with bonds of steel. Come, Katjuscha!" He clapped his flabby hands together. "Bring us vodka!"

The girl entered the room, her face glowing. "I was listening just outside the door," she announced, sweeping over to the couch on which Petrov was seated, and snuggling down beside him.

Petrov slid one arm around her slim waist.

"Well," said Grodski, lumbering to his feet with a prodigious sigh, "I guess it's up to Papa to fetch the vodka."

Just then here came a peremptory banging on the front door. Without waiting for an answer, the door crashed open, and a squad of gray-clad soldiers barged in, headed by the suave and handsome Commissar, from whom Grodski had saved Petrov that day of the blood-purge. Katerina and her lover stumbled to their feet.

Drawing himself up with as much dignity as his fat form permitted Dr. Grodski inquired, "What is the meaning of this intrusion, Comrade Bucholtz?"

"Complaints from some of your colleagues at the Clinic, Comrade Grodski. They charge that you are carrying on secret experiments here in your house. Anything secret is of course under suspicion. We must search the house."

"My experiments are for the glory of Stalin. My colleagues at the Clinic are jealous and nosy. They are trying to use you as a means to find out what I am doing, in the hope of getting ahead of me. So please to keep the soldiers out of my laboratory. Katerina and I and my young assistant will be glad to show to you personally, Comrade, what we are doing."

Bucholtz turned and scowled at Ivan Petrov. Then for the first time his eyes took in the provocatively rounded figure of Katerina Grodski. He drew himself up to his full height, threw back his shoulders, and smirked ingratiatingly. Katerina, coyly hanging her head, smiled up cornerwise at him. Petrov, noting this by-play, clenched his fists, but managed to control his temper.

The Commissar bowed stiffly from the hips in true aristocratic manner, and then offered his elbow to the girl.

"Lead on, Comrade Grodski. My men will remain behind—to guard the exits."

Dr. Grodski, trembling like a bowl of jelly, led the way to the laboratory. The dashing Commissar followed, with Katerina hanging on his arm: she smiling and dimpling and flashing her sapphire eyes; he patting the little hand that nestled in his elbow. Petrov, fuming and chafing, brought up the rear.

In the laboratory, on one of the tables, held in a cushioned frame, stood the head of the latest victim. Two branched pipes, the ends of their branches inserted at the base of the head, extended to a rhythmically pulsing pump, from which two other pipes ran to a complicated tank with thermometers, thermostatically controlled heaters, air fan, and other gadgets. Bucholtz stared with bewildered interest.

"Now, Comrade," said Grodski, "note what happens. Watch the dog's head." He whistled sharply, and the bodiless head pricked up its ears alertly. "Now I shall feed him." He went to a small ice-chest and took out a plate of meat; the dog fixed its eyes intently on the plate, then ran its pink little tongue out between its front teeth, curled it up and slid it back hungrily along one side of the upper lip. Grodski held up a piece of the meat between thumb and forefinger; the head seemed to be straining to reach it. He placed the meat in the dog's now opened mouth; the dog snapped it up and gulped it down, the meat falling through the gullet-hole at the base of the dog's skull onto the table with a plop!

"Marvelous!" breathed Commissar Bucholtz, his eyes staring. "How long has the little beast been dead?"

"Over a month now," Grodski answered, swelling with pride. "And there is no reason why it should not

live forever!"

"Man-made immortality! Stalin will thrill when he learns of this!"

"Patience, friend, patience. Give me time to make everything perfect, and then you shall have the honor of being the one to carry the news to our great leader."

"And in the meantime I shall come here frequently to watch your progress." The handsome Commissar smirked at the girl standing beside him.

She smiled up at him. Ivan Petrov stiffened. The Commissar reached out one large though carefully manicured hand, and stroked the girl's arm. Then slid his hand across her back, clasped her further shoulder, and drew her to him.

"None of that!" cried Petrov, leaping forward. "She is affianced to me!"

Commissar Bucholtz released the girl, fell back a pace, and whipped his revolver from his holster. Petrov halted abruptly.

A sneer gradually curled the lips of the sinisterly handsome officer. His eyes narrowed ominously. "So!" he hissed. "You young bourgeois, you! You aristocrat, you! I ought never to have spared your life, that day you came before the tribunal."

Petrov flashed a glance at Katerina to see how she was taking this; her head was tilted high with scorn. He turned to Dr. Grodski; but the doctor was wringing his fat hands, and staring ingratiatingly at the Commissar. No help in either of these quarters.

Indignant, he exclaimed, "Have you no gratitude, Dr. Grodski, for all the aid that I have given you in your great experiment? Explain to Comrade Commissar that you have promised your daughter to me."

Grodski pulled himself together and turned scornfully on his assistant. "You are out of your mind! Katerina is

promised to no one. My great experiment is all my own; you have been merely my technician."

Petrov clenched his fists. Repudiated! But what could he do about it! His body slumped, and he passed a tired hand across his eyes. The whole world reeled.

CHAPTER III

Prisoner of the Gay Pay Oo

BUCHOLTZ'S revolver prodded him to the door. Outside the guard seized him. "To the Gay Pay Oo with him! A political prisoner. Treason against the proletariat."

Petrov was dragged struggling out of the building. On the threshold he wrenched free for a moment and looked back; Katerina was in the arms of the Commissar, happy and willing.

Petrov then went meekly and without resistance the rest of the way over the cobblestones to the Gay Pay Oo Headquarters, and down into its basement. A hundred or more tattered, dirty, hopeless-faced individuals were being prodded along a corridor by a score of guards.

Into this group of prisoners Petrov was thrust, and they were all then herded into a small windowless room in which they fitted so closely that they could not move about.

"What is this place?" Petrov asked.

"It is the sweat-chamber," explained a huge muscular individual nearby.

"Oh!" screamed a frail old man, slumping to the floor.

"Get up, you fool!" rasped the burly man, yanking him to his feet. "You won't live half an hour down there."

The door was slammed shut, bolts could be heard clanking into place on the outside, and then steam began to ooze in through small gratings in the

walls close to the floor. The heat increased. One man attempted to peel off his blouse.

"Stop shoving!" shouted another near him.

The first man shoved all the more violently—fought for space in which to shed his clothes. Others followed his example. The room became a bedlam.

Above the din, Petrov shouted, "Stop a minute! Comrades! Listen to reason!"

"Quiet, you cattle," roared the burly man, "or by Saints Peter and Paul I'll bash every head within reach."

A momentary lull ensued, during which Petrov was able to make himself heard. "Our one chance of survival," he cried, "is to refrain from fighting each other, and to get our clothes off with some system. Now let's all crowd as close as possible to this wall on the right, and then let those by the left wall undress first. And so on, in successive rows. Come on."

His orders were carried out with a fair degree of precision, and soon the whole group stood stripped to the skin.

But still the heat increased. Sweat poured down their glistening bodies. The stench became almost unbearable. The men began to shift uneasily, wild-eyed, wincing when they touched each other.

Finally one man started screaming. Another took it up. And another.

Petrov shouted, "Cuff them down. If any man screams or starts to run amuck, cuff him down."

The screaming stopped.

The door opened. A cooling draft swept in. The caged prisoners surged in unison toward the opening.

"Back!" cried the guards. "Back!" With the butts of their muskets they felled several of those nearest them; but those behind kept on struggling forward, forcing the others before them.

"Back, you fools!" shouted Petrov, and he and his burly friend stemmed the tide. The milling stopped.

"Is Ivan Petrov there?" asked one of the guards.

"Here!"

"Come out. You're to be questioned."

"Hard luck, brother," whispered his burly friend, warmly grasping his hand.

"Carry on!" Petrov called back, as he elbowed his way to the door.

The door clanged shut behind him. Petrov, still naked, was led along the corridor, up a winding flight of stone stairs, and into an office. Behind a red-draped desk hung the inevitable huge portraits of Lenin and Stalin, and the hammer and sickle flag. At the desk sat a stern-faced official with long drooping moustaches. Beside him stood Dr. Grodski—oily and gross as usual.

Petrov swept his former patron with one long narrow-eyed glance of scorn. Then drew himself erect, squared his athletic shoulders, and faced the inquisitor at the desk. Then suddenly realized his own nakedness, and flushed. A momentary grin showed through the official's mask of sternness.

Grodski rubbed his short-fingered hands together. "My dear young friend," he intoned, with a carrion-sweet voice, "once more I have prevailed upon Comrade Bucholtz to spare your life. You are again paroled into my custody, so that we may complete our epoch-making experiment."

Petrov eyed him coldly. "I thought that the great Grodski needed no help."

Grodski's eyes flashed him a frantic message to be quiet, but Petrov was unimpressed. "I prefer to return to the sweat-room," he retorted with level incisiveness.

"What!" roared the official, half ris-

ing from his seat behind the table, his moustaches bristling.

"Now. Now. My dear Inspector," Grodski soothed. "After what the poor young man has just been through, you know—" He tapped his head significantly. The official nodded.

Grodski continued, "Get him a blouse and some pants and boots, and send him to my house under guard. Comrade Bucholtz's orders." He turned and waddled from the room.

"I still think that I'd prefer the sweat-chamber," Petrov shouted after him.

Later, clad in a dirty and ill-fitting outfit, doubtless shed by some other prisoner now deceased, Petrov was escorted back across the cobblestones to the brownstone front which housed the Grodskis.

Katerina was waiting for him on the threshold, her big blue eyes brimming with concern. "Oh, my Ivan," she purred, fingering his sleeve. "I was so fearful for you."

Petrov stiffened. "You lie! You love Bucholtz."

"Oh, Ivan, Ivan," she pled, placing her hands on his broad shoulders, "how can you misunderstand me so? One has to be careful these days. I concealed my feelings, dissembled, to save the lives of those I love. But you were so rash! Your rashness made things so much harder for me. I love only you, Ivan. Cannot you believe me?" She drew close and pressed her soft well-rounded form against him.

He stiffened, tried to push her away; but her nearness overwhelmed him. "Of course I believe you," he exclaimed, flinging his arms around her waist and shoulders, and covering her flushed upturned face with passionate kisses. How unfairly had he misunderstood his friends the Grodskis! How difficult had he made it for them to protect him! He

hung his head with remorse.

Yet suspicion did not wholly die. For Dr. Grodski's first demand was that his returned assistant teach him the entire technique of the dog's head experiment, so that he could perform it alone. Why should Grodski wish to try to perform the experiment alone, except to learn whether or not he could now dispense with the assistance of Ivan Petrov? Petrov said as much, not very tactfully.

Grodski's face was pained. "My dear young friend, you wrong me. But I do not blame you, after what you have had to endure. All that I can say is that, if you cannot trust the father of your affianced bride, you still have no other choice than to comply with my wishes. Go through with it then, and see whether or not your suspicions have been justified."

"I could still return to the sweat-chamber of the Gay Pay Oo."

Grodski's pig eyes narrowed. "Far better to trust us," he snapped.

Petrov shrugged his broad shoulders. "Very well then. I shall proceed *as though* I trusted you; but I shall keep my eyes open."

Katerina was very sweet and close to him that day, and he taught Grodski everything that he knew, until the doctor was able to duplicate the dog's head experiment alone and without any prompting. The dapper Bucholtz came to watch the operation, and—surprisingly—made no further advances to Katerina.

"For he now understands that I belong to you," she explained to Petrov, when the Commissar was gone. "He's really not a bad sort, when one gets to know him."

"But I don't want you to get to know him!" Petrov stormed.

Katerina pouted and held up her lips to be kissed. In the warm embrace which followed, Petrov almost forgot

his fears.

Dr. Grodski was bursting with pride at having mastered the technique of the dog's head experiment. "Oh, that Chichulin, he will be green with envy!" he exulted, his flabby face suffused. "And, my young friend, you now see how you have wronged me by suspecting me. For now that I am to go on to greater heights, I shall need you all the more."

CHAPTER IV

A Horrible Experiment

"WHAT are these greater heights?"

Petrov asked, perplexed. For the first time since their association together, he did not succeed in thinking a step ahead of his patron. "Dr. Grodski, you are able, alone, and unaided, to render a dog's head immortal. Why not show this to Comrade Stalin now? To what greater heights can you possibly aspire?"

"I shall render *man* immortal," the fat doctor boasted. "Then I, Nicholas Grodski, shall be greater than God. Stalin will love me for that!"

Petrov mentally crossed himself. "But where can you get a man's head for this experiment?" he objected. "It must be a *living* man, you know; a corpse will not do."

"Our friend the Commissar has arranged all that for me. He is sending me a prisoner from the Gay Pay Oo—an old acquaintance of yours." Grodski chuckled, his fat belly shook.

Petrov stiffened in horror. Perform the experiment on a *living* being!

He hoped that this victim was not the burly brute who had backed him up so nobly in stilling the panic in the sweat-chamber. But no, it turned out to be black-bearded Judge Peshkin who had voted for Petrov's death that day, back

in his home town on the Volga, when Commissar Bucholtz had spared his life at Dr. Grodski's request.

Nothing had been said to Peshkin about their plans for him. Accompanied by Bucholtz, and led by the two common soldiers, he entered the Grodski laboratory. The dogs' heads on the tables had all been carefully screened, lest the soldiers see. Katerina was not present.

"A sudden surge of pity flooded Petrov, and he recoiled from the thought of performing this ghastly experiment on a fellow human-being. But, after all, this Peshkin had shown no pity for *him*—this Peshkin typified all that Petrov hated and despised in present-day Russia. And, too, he had no choice. Grimly nerving himself Petrov clapped an ether-sponge to the nose of the struggling man.

Gradually Peshkin's struggles ceased. His breathing became stertorous. At a command from Grodski, the guards laid the unconscious form on an operating-table, and withdrew. Katherina was called in. White-lipped and wide-eyed, she took charge of the patient, as the two scientists donned white robes, gauze masks, and rubber gloves.

An ether-and-oxygen tank was wheeled up, and the rubber cone on the end of its hose was affixed to the victim's nose. His neck was shaved and antiseptized.

"Let me perform the operation," Grodski ordered.

Petrov, his qualms returning, heaved a sigh of thanks at being relieved of the responsibility.

With a precision inconsistent with his flabby body and pudgy fingers, Dr. Grodski deftly made the incision. His daughter handed him instruments as needed. Ivan Petrov watched, intent for any mismove. But there was none

—his patron had mastered the technique.

Bloodlessly the severed head was lifted away. In a split second the tubes were inserted in the veins and arteries of the stub of its neck. The ether-cone was removed from its nose. Blood was drained from the now-lifeless body into the reservoir of the reerator. The pump was started. The skin-flaps were sewed together. The velvet and steel collar was fitted in place, and the head was mounted on its stand. Grodski stepped back, panting and trembling, and surveyed his handiwork.

As the oxygenated blood coursed through the brain of the bearded head, its eyes opened, at first rolling and showing only the whites, then gradually becoming normal and staring in perplexity around the room.

"He lives!" Grodski exulted. "He lives!"

The eyes turned and fixed themselves on him with a puzzled expression, and the lips seemed to be framing a question.

"Comrade Peshkin," Grodski addressed the bearded head, "I have made you immortal. Your severed head will live forever."

"Yes, Peshkin," Petrov added, with a bitter edge to his tone, "you would have condemned me to death a few months ago. Remember? But you now have eternal life. See, there lies your dead body on the operating-table, but your head—the part of you which is really you—lives on."

The eyes in the bearded face turned and fixed themselves on the headless body, then went suddenly blank. The muscles of the face contorted. The jaw dropped. The lips seemed to be forming a scream, although no sound came.

Petrov stepped over and studied the features intently for a few moments, then turned to Grodski with shoulders

slumped dejectedly. "The shock has been too much for Comrade Peshkin. He has gone stark, staring mad. Our great experiment is a failure."

Grodski slumped dejectedly, and did not question the "our".

In the days which followed, the bearded head lived on, but never recovered its sanity. Grodski, completely humbled, consulted freely with his young assistant—even seemed to hang on him for advice. They finally decided to ask Commissar Bucholtz for another prisoner from the Gay Pay Oo. This time they planned to explain the situation slowly in advance to the victim, so that his mind might not become unhinged.

Also Petrov devised a speech-apparatus. A reservoir of compressed air was to be attached to the larynx by a rubber tube, the air to be admitted in gusts by a valve actuated by an electric contact placed inside the mouth between cheek and teeth. Grodski and his assistant practiced with this contact, and found that it could be easily controlled at will by merely tensing one certain cheek-muscle.

The new prisoner, a stolid young peasant, was brought to live with them. First they practiced him in the use of the speech-apparatus, until he had fully mastered it. Petrov became so engrossed with his work that he only dimly sensed the growing aloofness and abstraction of his Katerina.

Meanwhile Grodski tactfully and gradually broached to the peasant the facts as to his impending fate. It took some time to get the idea across, but when it finally permeated the dull brain of the young peasant, he too, as the bearded head of Peshkin had done, rolled his eyes and contorted his features. His screams of utter fright were quite audible.

Then he went berserk! With super-

human strength he broke away from them, crashed through the heavy locked door of the house, and rushed blindly down the front steps into the streets.

Grodski, drawing a pistol from the folds of his blouse, calmly felled the fleeing man with one shot from the doorway. For the rest of the day he brooded sullenly alone, while Petrov sat with one arm around Katerina, and wondered what the next move should be.

CHAPTER V

A New Victim

THE next morning Dr. Grodski announced with determination, "We must try again. I have arranged with Comrade Bucholtz for a new prisoner."

Later in the day, everything tell-tale in the laboratory being first carefully screened, the Commissar arrived with a squad of soldiers, and was ushered in.

But no prisoner stood among them.

Petrov stared at the group in surprise. "Which one—?" he began.

"Seize him!" Bucholtz commanded, an evil light of triumph in his brown eyes.

For a single petrified instant Petrov stood rooted to the spot, then horror swept into his face in a white wave. With a single swift leap, he whirled his back against the wall and stood at bay, confronting the treacherous Grodski, who stood leering at him.

"Seize him," repeated Bucholtz again, with narrowing eyes.

The soldiers leaped forward. Petrov lashed out a fist that caught the first flush on the point of the jaw. He went down with a groan, and a second uniformed man closed in. In his hand was a gun, held by the muzzle. He lifted it high as he leaped.

"Don't!" screamed Grodski. "Don't

hit him in the head!"

The soldier faltered in his stride, and Petrov snatched the gun from his hand with a swift motion. But before he could bring it to bear, several more men leaped upon him, and bore him to the floor. Petrov was crushed beneath the weight of the entire squad of soldiers now. Blindly he shoved the gun into the mass and pulled the trigger. There was a muffled explosion, a hoarse scream. One man rolled from the heap and lay doubled up, his hands upon his abdomen, rapidly staining with blood.

Then Petrov felt the weapon torn from his fingers, and found himself tightly clutched by arms and legs.

"Stand him up," commanded Bucholtz harshly.

Still struggling, Petrov was yanked to his feet, to face his captors.

"And now, my dear Ivan," said the Commissar. "It is you who will be the next subject for the great experiment. And see to it that you do not lose *your* head!" He guffawed lustily.

Petrov's eyes turned frantically toward Dr. Grodski, to see the doctor already advancing toward him with an ether-sponge in one hand. He glanced at Katerina, his Katerina; but her golden head was held high, her blue eyes narrowed, and there was a thin sneer on her full red lips.

The sponge was clapped to Petrov's face. With a shuddering gasp, he drew in the pungent fumes. He wrenched at the hands which held him. He tried to scream, but only a bubbling groan came through the cold wet sponge. Then he felt his knees give way, and he seemed to fall backwards down to a bottomless pit to the crescendo of beating drums.

He awoke drowsily, with a feeling of floating unreality. He tried to move, but his whole body felt numb—out of control. Everything was blurred before his eyes. But gradually, with a supreme ef-

fort of will, Petrov compelled his eyes to focus.

In front of him were grouped Dr. Grodski, Katerina, and Commissar Bucholtz, all staring at him anxiously. The Commissar's arm was around the slim waist of the girl, holding her possessively. Maddening sight! Petrov strove to rise to his feet—but some sort of paralysis held him.

"Get away from that girl, you cur!" he shouted—but no sound came, although his lips formed the words.

Then he remembered.

He felt a small lumpy object inside of his right cheek. Pressing this against his teeth with the muscles of the cheek, he managed a stertorous groan. Then carefully forming the words, Petrov repeated audibly although strangely distorted, "Get away from that girl, you cur!"

Bucholtz started angrily forward, and his free hand reached toward his holster. Then stopped with a maddening grin. "'Cur is hardly the word for *me*, Comrade Petrov; for it is not *my* head that is serving as that of a dog."

Dr. Grodski's fleshy face was beaming. "Comrade Commissar, Katinka, do you realize! My great experiment is a success! Ivan's head lives! His mind is clear!"

Petrov stared at Bucholtz and Katerina, then at Grodski. Then beyond them where a shrouded and headless corpse lay on an operating table.

A sudden ghastly realization flooded his brain. His vision fogged. The whole room reeled about him.

Then a recollection of the insanity of the bearded Peshkin stayed the crumbling of his mind. Intense hatred for the grinning Bucholtz and the oily Grodski brought him back to normal.

"To think that I taught you this!" he groaned.

"Oh, my dear young friend," Grodski

pled, "do not feel too harshly toward me. It was a noble sacrifice for a noble cause. And eventually you will thank me for it, for you shall live forever. Thousands shall journey to see you. Your head will become more famous even than the body of Lenin."

"Dr. Grodski," breathed Bucholtz, "I salute you. You are the greatest scientist of all the Soviet Union. I have waited long for this moment. May I go now and bring Josef Stalin?"

Grodski nodded ecstatically. Bucholtz gathered Katerina into his arms and implanted a kiss on her full red lips—then strode from the laboratory.

Watching them, Petrov set his jaw in agony, and a blast of air through his esophagus blew his mouth open with a gurgling groan.

Katerina hurried over to him, with tears in her big blue eyes. "Oh, Ivan," she pled, "I still love you. Please, please believe it. We did this for you. Commissar Bucholtz was determined to kill you. But I saved you, even at the cost of submitting to his unwelcome embraces!"

"And what about the cost to me?" bitterly asked Petrov.

"You are—were—a Christian, Ivan. Does not the Bible say: 'All that a man hath will he give for his life?'"

"Yes," Petrov agreed, "but do you know who it was that said that in the Bible?—Satan."

Unrebuffed she replied, "Ivan, I shall take care of you always. Long after the Commissar has forgotten me, I shall take care of you."

"And meanwhile you will have your little day of triumph as the Commissar's plaything. He at least has arms and a body to satisfy you."

"Oh, Ivan," she sobbed, pressing her warm red lips against his.

In the ecstasy of that kiss, Ivan Petrov momentarily forgot his bitterness.

CHAPTER VI

A Demonstration for Stalin

WHILE waiting for Dictator Stalin to find time to come to the laboratory of the Grodskis, the fat doctor trained the head for the part it was to play in the demonstration. Petrov learned to control the blasts of air, so that his speech became almost normal.

At first, he could not sleep, and the long night watches became periods of almost unbearable introspection and gloom. But finally, at his own suggestion, a way was found to induce sleep by changing the carbon-dioxide content of the blood stream and by slowing down the pump. He took a keen interest in his own welfare, and supervised the administration of the necessary hormones.

Katerina was very sweet and attentive to him. To his surprise he found that although he could not hold her in his arm and press his body against hers, as he longed to do, nevertheless this longing grew less and less intense. His love for her, now centered in the innermost consciousness of his brain, rather than in his body, became deeper and more real. But gradually it dawned on him that, due to his having no body to respond to the call of hers, she was slipping away from him.

As this realization grew, there grew with it a deep-seated hatred for the virile young body of Commissar Bucholtz, and a bitterness against Dr. Grodski for having condemned him to this bodiless fate.

Finally the great day of the visit of the Dictator arrived. Joseph Stalin strode in, wrapped in his belted overcoat, peaked military cap on head. Grodski was fluttery and perspiring; Katerina, alert; and even the debonnaire Bucholtz was tense and fidgety. The

bodyguards of the Dictator filed in and took up grim positions along one wall.

"Comrade Bucholtz," Stalin was saying as they entered, "if this is one of your tricks, it will go hard with you and with your fat friend. You know how I despise practical jokes."

"Observe the living head, Comrade Stalin," Bucholtz replied, waving one carefully groomed hand toward the table.

Petrov closed his eyes and made his face absolutely expressionless. Thus it had been planned between them, in order that the later demonstration of life might be all the more impressive by contrast.

Stalin strode over to the table. "Um," he grumbled. "Looks to me like nothing but a wax model."

"But so does the head of Lenin's body," Grodski objected, "and yet Lenin's head—"

"What!" Stalin exclaimed, his eyes flashing. "Do you imply that Lenin's head—?"

"Oh, no!"

Stalin glowered at the cringing Grodski, and then turned his attention back to the waxlike head of Ivan Petrov. "Well! Hasten. Make this mask perform. And if this is a fake to which you have brought *me* the busy Josef Stalin here to see, it will mean the Gay Pay Oo for both you and Comrade Bucholtz."

"Yes, Comrade Stalin." Shaking like a bowl of jelly, Dr. Grodski approached the table and commanded, "Open your eyes, Ivan."

Slowly one eye of the head began to open. It saw the glance of love and admiration which Katerina was bestowing upon Commissar Bucholtz. Slowly the eye closed again. The muscles of the head's jaw tightened imperceptibly.

"Do you hear me, Ivan? Open your eyes," Grodski cried. But the head

showed no sign of having heard.

"Speak to me, Ivan!" Grodski shrieked. "Don't you realize what you are doing?"

Stalin beckoned to his bodyguard. They advanced. "Seize these two imposters," he commanded.

Grodski fell to his knees and groveled before the Dictator, wringing his fat hands. Bucholtz whipped his revolver from its holster and leveled it at Petrov's head. But Katerina flung herself protectively in front of the head, as the guardsmen seized and disarmed the Commissar.

"Drag them away," growled Stalin.

Katerina turned to the head, and spoke softly in one ear, "Ivan, Ivan, hear me? Speak! Speak, and save the life of my father. Your own life too is at stake. Speak, and I will stay by you and care for you always."

Slowly the head's cool gray eyes opened and stared fixedly into the girl's face. Then a sneer of contempt curled Petrov's handsome mouth.

"Katerina," he said, "I hate your father—and your lover—and you."

But the girl had risen and turned away. "Comrade Stalin," she was shouting, "Look! The head lives. Its eyes are open. It speaks."

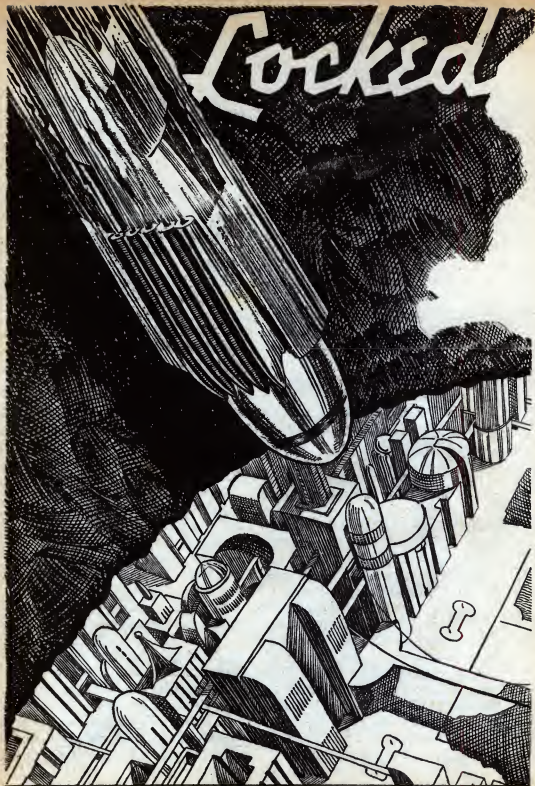
Stalin glanced back. But the head's eyes were closed, and its expressionless features were waxlike as before.

"Take them away," Stalin rasped, stalking out through the door.

The head's eyes opened again, and a triumphant smile played around the corners of its mouth as it saw the soldiers dragging Grodski and Bucholtz after the departing Stalin.

Katerina, with a cry of rage like that of a thwarted animal, ripped the rubber tubes from the veins and arteries of the head's stub neck.

Thus died Ivan Petrov, smiling.



Locked

City

By THORNTON AYRE

Exiled from Earth, and facing certain death, they found the Metropolis of Mars deserted, except for 7 strange characters

CHAPTER I

Sentence of Death

"**R**ODNEY CALAB, Eva Calab, and Boris Rengard—you stand accused and convicted before this court as traitors to the cause of world progress—as defeated leaders in an effort to overthrow world government . . ."

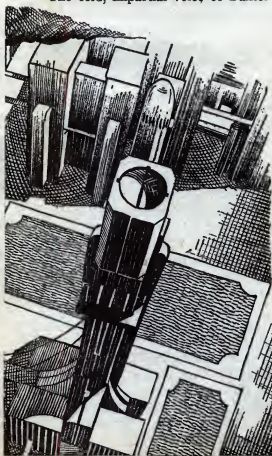
The cold, impartial voice of Baxter

Holroyd became silent for a moment. Every eye in the packed Hall of Judicature turned to where he sat—a grossly fat, vulgar, bald headed man, half leaning on his high and solitary desk, his pale eyes fixed in gloating triumph on the three in the dock before him.

This was no normal trial, no matter of espionage, but the final act of ruthless injustice that spelled doom for the vast, downtrodden bands of Earth who had seen in the vigorous, intelligent Rodney Calab a new savior from oppression.

Democracy, fascism, communism . . . Together with hundreds of other distinct policies they were all merged into a common dust in a record of nearly fifty years of desperate slaughter and struggle. First Europe and Great Britain; then the United States (with her isolation scheme in pieces) sank too. Japan and Russia rolled into the whirlpool. Across the world raged war at its vilest. Democracy and liberty

An amazing metropolis, its topmost heights reaching nearly to the rocky cavern roof



JULIAN S. KRUPA 258

were swept out of all knowledge. Iron dictatorship had won.

For ten years now, Baxter Holroyd, better known as the Iron Dictator, controlled the Earth's peoples with a severity and cruelty that had no parallel with the past. Science went on, cities were rebuilt, civilization picked itself up again—but all for the good of Holroyd. Anybody daring to raise a finger against him or his retinue knew the answer was always instant death.

Rod Calab and his wife, Eva, defied that possibility. Together, with the young chemist Boris Rengard to help them, they struggled desperately and in secret to devise ways and means of scientifically undermining Holroyd's power; were within an ace of success. Then came exposure, trial, and now—

"There are various means this court could adopt to dispose of you," Holroyd resumed smoothly. "You could be shot, you could be burned slowly with heat rays, you could be exiled to the new Polar continents . . . All those things we could do, but we shall not.

"Today, in this proud year of 1990 it is science that definitely holds sway, that bows down before the rule I have instituted for the common good of the people. To the end of furthering that science you shall be given a chance to live . . ."

The three remained silent—Calab, tall, lean limbed, dark haired, with a resolute jaw; his wife upright and defiant, blonde headed and blue eyed. Both of them moved only slightly. Boris Rengard did not even do that. Small and lofty browed, unruly hair as red as a sunset and eyes so dark they seemed to have no pupils, he stood gripping the rail in front of him, knuckles white through the taut skin of lean hands. Whether facing death or life science was his only stimulus. He waited expectantly, almost coolly, star-

ing up into the grinning, flabby face looming above.

"Yes, a chance for life," Holroyd repeated softly, but it was a softness that had the bitterness of nitric acid. "You may be aware—you in particular, Rengard—that our science now is faced by two major problems, atomic force and the feasibility of space travel. I say 'feasibility' because space travel by rocket ship is an accomplished fact.

"The work of Calva Neil, your close ally in your attempt to overthrow me and whose life I now spare only because of his genius, has unlocked the void for us. But where are there lives we can sacrifice in the first experimental trip across such a vast gulf as, say, forty million miles? Criminals are too useful; ordinary citizens too valuable.

"That the journey can be made, we know full well, but the strain on a human frame has yet to be ascertained. No man has ever yet been into space. . . . You three will make the initial journey!"

A heavy silence dropped on the hall as the Dictator mused for a moment, rustled his papers.

"The chosen objective," he resumed, "is Mars. Principally because it is obviously a dead world; also because its conjunction is favorable at the moment; and again because a forty million mile journey will tell us all we need to know if a longer trip is ever attempted.

"You three will be rendered unconscious for a period of two weeks. During that time the rocket ship carrying you will cross the gulf, controlled as on previous occasions by the Neil Remote System. I need hardly add that, in view of his recent collusion with you, Neil will be heavily guarded during the process.

"It is certain you will land on Mars without mishap. If you have suc-

cumbed to the strain you will obviously be dead. If you have survived you will awaken. When you do that, certain concealed micro-waves networked across the interior of your cabin will react on photoelectric cells as your bodies intercept their paths. The cells will in turn actuate along a remote controlled beam and produce a response back here on Earth.

"We shall know by that means that you are alive—that space travel can be accomplished by human beings. Because you do not know the position of these beams, because you will be too dazed on recovery to even bother thinking about them, you will be quite unable to prevent the signals going forth. Is that clear?"

"And if we do live?" asked Rengard stonily.

The Dictator smiled icily. "Then, my friends, Mars is all yours!" he grinned. "A mostly waterless, airless planet to do with as you will. It is one world we shall never trouble to colonize, but if you can reach it, it makes us secure when we decide to take over Venus and other possible worlds. Then outwards—to the Galaxies!" Holroyd paused, oozing for a moment that spell binding power that had made him the ruler of a harassed, post-war world.

"Your ship will have enough fuel to reach Mars—no more," he resumed. "You will have no provisions, and no water. If you do awake, you will soon die . . . horribly, as you deserve—"

In the jammed hall outside came a commotion.

"I won't do it! Damn you, Holroyd, I won't!"

The Dictator and three in the dock turned. In an instant they recognized the blond head and ruddy-cheeked face of Neil, their defeated friend, perhaps one of the cleverest young electrical geniuses of the age. He shook his

fist savagely across the astonished mob of people.

"I'll not guide any ship containing my friends!" he roared. "They are my friends, always will be, and no radio control of mine is going to send them to such a death as that!"

"No?" Holroyd's thick lips were sneering. "We will see to that later, my friend. Guards, take him away! Hold him under strict observation until further orders. Take these three prisoners away too. Sentence is passed!"

He leaned back and watched complacently the prompt execution of his commands.

Just after sundown he was watching again, from his apartment window in the Executive Building, the departure of a rocket ship climbing in a streak of sparks to the cloudy sky. Languidly he turned to the televisior and switched it on. It gave him a picture of the remote control radio room in another quarter of the vast Executive Building.

Young Calva Neil was hunched over the controls of his amazing apparatus. Every moment was clearly one of extreme helpless bitterness. Time and again he looked up at the iron-faced guards around him with their leveled ray guns . . . then with a hopeless shrug of his shoulders turned back to his task.

Baxter Holroyd switched off, and smiled—the smile of a being who has more of the snake in him than the man.

CHAPTER II

The Deserted City

ROD CALAB moved dully, heavy headed, aching. His body throbbed as though it had been subjected to an interminable succession of hammer blows. Wearily he opened his eyes, found himself gazing at a roof of curved metal illumined by weak re-

flected sunshine.

Little by little remembrance seeped back—the anesthesia on Earth in the prison cell, the memory of a last helpless struggle. The journey to Mars? Forgetful of his pains he eased off the soft spring bed against the wall—eased rather too rapidly indeed for the lesser gravitation instantly made itself evident and sent him sprawling.

After a minute's careful effort he found just how much energy he needed. Gently he picked his way to Eva and Rengard as they lay motionless on their beds, eyes closed, faces white and rigid. Anxiously he felt their pulses. They were still alive, sluggishly so in the grip of unconsciousness. There was nothing could be done for them but wait for the awakening.

His head clearing a little Rod stumbled to the window, clutched the frame and stared outside. It was a view that brought hopelessness into his gray eyes. The vessel had landed in the midst of a near-horizoned desert. It stretched away, uneven and bumpy, totally empty of life. Overhead the sky was blue black, powdered with brightly gleaming stars, the green spot of Earth itself visible low down in the west—or what Rod judged to be the west.

"Grand place to have a thirst!" he whispered, licking his dry lips. The stimulus shot into him at the time of the anesthetic had kept his body nourished during the two weeks, but now he felt the ravaging pangs of thirst and hunger. Wearily he rubbed his aching head. Then he turned about and looked at the fuel gauge.

There was still some explosive in the chambers—about enough to cover 2,000 miles. No more. Return to Earth was an absolute impossibility. With fingers that ached he operated the external air devices, made a wry face at the readings. The atmosphere outside

was unbreathable in its thinness, approximating that of Earth's stratosphere.

"Damned lousy place!" he growled bitterly, and licked his lips again.

"I agree with you, Rod."

He turned in swift surprise and found Rengard sitting up on his bed, his red head in his hands. Savagely he ruffled his flaming locks, then looked up with a faint grin.

"Well, we made it," he commented. "Guess Holroyd's aware of it by now, too. Our alarm signal will have reacted, I suppose. Not that it does us much good, of course," he finished moodily.

He tested his weight against the gravity, moved to Rod's side and sourly studied the instruments. Then, shrugging, he flung wide the doors of the storage cabinet and gazed at the empty shelves with bitter eyes.

"Nice going!" he sighed. "Holroyd certainly kept his word. If we're to get out of this hole we've plenty of fast thinking to do."

"There isn't a way out," Rod growled. "Holroyd knew that when he sent us here. We're just prize guinea pigs, that's all."

He turned aside at a low cry from Eva. Gently he supported her as she began to recover consciousness. In ten minutes she was fully awake, in possession of the cheerless facts.

"Wonderful!" she shrugged; then with a whimsical smile, "What a pity space didn't make an end of us. Not much sense in being wakened up to die, is there?" She turned and looked at Rengard. He was standing by the window now, hands deep in pockets. "Any ideas, Ren?" she asked. "You're usually the one to get 'em."

"Maybe I have," he mused. "Come here a moment. . . ."

When they had come to his side he pointed across the desert towards the

horizon. "Notice anything out there, against the sunlight?" he asked quietly.

"You mean that tremoring effect against the light?" Rod questioned, staring steadily. "Looks to me as though it's coming out of the ground—"

"Yeah; and if it is it means warmth," Rengard pointed out. "It would rise rapidly in this thin air. Warmth from inside the planet might mean anything. Might as well go and see what it is. We've fuel enough for two thousand miles, so let's go. . . ."

He turned actively to the switchboard, remembered the gravity and shuffled forward slowly. In a moment or two he had disconnected the automatic radio devices and flung in the main power switches. Instantly the tubes fired, drove the ship upward in a cloud of dust and sandgrains. Against the lesser gravity it moved with consummate ease.

Rod and the girl remained at the window, holding onto its frame. The terrific speed of the vessel and the slight attraction played the oddest tricks on their sense of balance.

"Why, it's—it's a dead canal junction!" Eva cried suddenly, pointing below to the skimming desert. "Or is it?" she frowned. "Looks like a pit of some sort. . . ."

Rengard stared into his own observation window, took in a view of five dead channels, which had obviously been canal systems at some remote period, all running into a common convergence in a vastly deep, sunken circle. It took him a few minutes to realize that he was actually gazing at a shaft—that the darkness of the hole was not caused by the black shadows of the desert, rendered intensely dark by lack of diffusing air, but by tremendous depth going down heaven knew how far.

"Warm air out of that, huh?" he murmured. "That's interesting! You

two ready to take a chance?" He glanced across the room.

"If you mean to go down the mine—yes," Eva said, seeing Rod's look of agreement. "Guess we can't be any the worse off, and we might find a lemonade or hot dog stand somewhere below. Go to it!"

"Oke!"

Rengard slammed in more switches, flew round in a sweeping semicircle, then tilted into a dive that sent the vessel whizzing downward with breath-taking speed. For an instant Rod and Eva cramped their eyes shut; it seemed a certainty they were going to crash into the shaft's side; the gravity was so light it was hard to control the machine properly. . . .

But Rengard knew what he was about. With a dexterous swing and a roar of exhaust he plunged into the abysmal dark of the place, slowed the speed, found the shaft wide enough to carry the ship broadside and so teetered down little by little with his ground blasts belching below to prevent a sudden fall.

With anxious eyes he watched the throwback meter—an instrument designed to show exactly how far away the ground was. He stared unbelievably.

"Thirty miles!" he gasped. "A shaft thirty miles deep! It isn't possible. . . !"

But he was wrong there. The shaft was all the instrument claimed it to be. The ship descended in jerks for nearly an hour before it finally burst out of the eye-crushing blackness into a titanic, brilliantly lighted expanse that jolted the retinæ with its sudden effulgence.

The three stared out on the amazing emptiness. Apparently it was chiseled smoothly by unguessable forces out of sheer virgin rock. A cavern, of stupefying size, illuminated at opposite ends

by two blindingly brilliant balls, their heat becoming evident on the meter registers, but not through the proofed windows and walls.

"Energy, I'd say," Rengard murmured, fingering his controls. "Energy cores of some kind, slowly eating their way through the rocks perhaps. Probably the original forces that started this cavern going. Maybe natural, maybe man made, I don't know—"

"Civilization!" yelled Eva suddenly, interrupting him. "Look down there!" She pointed excitedly below.

Rengard and Rod stared with her, down upon the amazing sight of a solid, invincible looking metropolis, its topmost heights reaching nearly to the cavern roof. In all it covered several square miles.

The buildings were of bluish metal, almost like chromium in their odd tint, perfectly architected and studded with gleaming windows. The streets were orderly and spacious, the squares broad and imposing. There were pedestrian ways, traffic ways, monorails, subway entrances, every conceivable adjunct of a highly advanced city, and yet—

Not a thing moved! The place was utterly empty and deserted!

"Odd," Rengard muttered, staring over the silence. "Damned odd! Looks as though everybody's gone for a holiday. . . ."

He looked beyond the immediate city and found it was almost surrounded by a small jungle, in the midst of which were splashes of yellow which revealed themselves into fruit trees as the vessel dropped lower. Fruit like melons. In between the trees was the gleam of water in the twin sunlight.

"Water!" Eva gasped thankfully. "Thank heaven for that!"

"If it's drinkable," Rengard said pessimistically, and hardly dared glance at

the instruments. Then he said brightly, "We're in luck. Air pressure down here is about the same as Earth's. Only explanation is that the Martians, if any, trapped it down here when things got too thin on the surface. Surface air now represents the equivalent of our stratosphere. . . ."

He brought the ship down in a little clearing, facing a miniature lake lined with the heavy trees. It was shadier here, hidden from the glare of the suns.

Rod turned to the airlock, unfastened the heavy screws and flung the cover wide. The air that entered was hot and moist, but otherwise little different from Earth's.

Almost instantly Rengard vaulted like a kangaroo through the opening and headed in flying leaps towards the pool, flung himself down on the mossy ground and plunged his face into the shining coolness. He drank noisily. For a scientist he was amazingly lax in making no preliminary tests; but then thirst had overcome all prudence. He straightened up at last and wiped his trickling chin.

"Swell!" he observed, sighing contentedly, as Rod and Eva looked down questionably upon him. "Try it!"

They lay on their faces to follow his example, but before their lips touched the water they looked up sharply as Rengard gave a hoarse cry.

"For Pete's sake, look!"

Slowly they stood up again, staring amazedly at the first evidence of life they had so far seen. Surprising life indeed!

Little creatures, so human in form it was hard to distinguish them from Earthlings, save for their blue tinted skin and large vividly blue eyes, were moving timidly from out of the shadows of the trees. In all there were seven of them, clad in loose, sleeveless garments that reached to their knees. Their

hair, the color of ripe corn, flowed in bushes round their heads, caught up in some cases with a blue band, but in others left to flow wild.

Rod stared at them, blinked as he saw that in their slim-fingered hands they held the melon fruits, extended forward as though in the form of a gracious offering. The feet of the little creatures, encased in soft, vegetable like shoes, made hardly any sound on the mossy turf.

"Why, they're—they're only kids!" Rengard cried. "They're not even fully developed yet!"

"You're right," whispered Eva unbelievably.

Certainly the limbs of the little people were quite childlike. The arms and legs lacked all signs of maturity; they were lissom and supple, free from all sinew. From the difference in form of three of them, and the bangles on the hair, it was pretty obvious that three were girls, and the remaining four boys.

"Say, is this a Martian kindergarten, or what?" Rod whistled. "I don't begin to—"

He broke off as one of the girls held out her fruit more boldly, jabbed a rounded arm towards the pool. "*Juzaf!*" she observed, making a pained grimace and rubbing the region of her stomach. "*Ulfa juzaf!*" She thrust the fruit out again.

The rest of the children nodded seriously at her remark and Rod scratched his head.

"The pool," he said, taking the fruit, "is *ulfa juzaf*—whatever the hell that is."

"Yeah. . . ." Rengard looked serious. "Wish I knew what it meant. Tasted all right to me."

Pulling out his knife, Rod cut into the fruit vigorously. The juice instantly began to stream out and he held it over his mouth. Appreciatively he drained it.

"Gosh!" he whistled. "Melon, port wine, champagne, and a high ball, concentrated!" He cut the thing into pieces and chewed it gratefully. "Good as beef steak. . . . Try it. You can't go wrong."

The children looked on in pleased interest as Eva and Rengard took the rest of the fruits and made an attack on them. The stuff was surprisingly satisfying, appearing to have tremendously nourishing properties.

"There's something wrong here, all the same," Rod commented, when he had made an end of eating and put his knife away. "These kids, on earth, wouldn't be fixed at more than ten years old. What are they doing so far from the city? May have seen our ship dropping, of course, but even then—"

"Point is," interrupted Rengard thoughtfully, "do they even belong to the city? As we saw it, it was totally deserted. . . ." He turned to the pretty little group and showed them the metropolis through the trees. "City?" he asked. "City yours? You come from there?"

Their blue eyes looked towards it. They smiled to reveal white, even teeth. They even danced a little; nothing more.

"Big white chief's palaver no dice," said Eva solemnly.

Rengard shrugged. "Guess you're right. I'll have to learn their language. Sooner I know what *juzaf* means the better I'll like it—"

"The language can wait," interrupted Rod briefly. "I'm going to take a look at that city and see what's wrong with it. There must surely be somebody? The parents of these kids, for instance? Let's be looking."

"It's sure got me puzzled too," Eva said thoughtfully. "It stands to reason these kids didn't just 'grow' like Topsy. I'm for finding out now."

CHAPTER III

The Seven Master Locks

THE party headed through the queerly fashioned, fruit-laden trees. The Martian children seemed to regard the whole business as some kind of pleasure jaunt, skipping and jumping along behind the three Earthlings.

The nearer they came to the city the more they were puzzled. The jungle led directly down onto one of the main entrance streets, thence into the city center, yet as they progressed slowly along they saw no signs of anybody. Not a thing moved: the giant metropolis loomed around and above them, the very quintessence of power—with nobody to look after it! There were not even any more children, apparently. The seven who danced and giggled with amusement, watched with wide-eyed innocence, were the only guardians.

For an hour—two hours—the party wandered in and out of the great open buildings, found machines set out in orderly array, machines of such complexity that they defied comprehension. It was pretty obvious that they were electrical, and in perfect condition, their controls all being centered on a massive switchboard.

But there was the funny thing. The master switch was locked! It was fastened around with bars of metal slotted into combination wards that no power could conceivably break—except the knowledge of the actual combination itself.

"Talk about burglar alarms," murmured Rengard. "This city looks like one plus." He looked helplessly at the smiling children, patted the head of the nearest boy in controlled exasperation, then turned about to continue the tour.

Yet everywhere they went, every building they looked in, things were still

locked up. In one edifice was a vast army of robots, standing motionless. In another there stood a solitary machine—a gigantic circle of metal, its surface finely filigreed, its entire bulk supported by gracefully arched metal arms. It was not unlike a vast gong. Only a vague idea of its purpose could be gathered from tremendous horseshoe magnets grouped above and around it, which in turn linked up to a baby forest of glass tubes, insulator banks, wire wound drums, and finally by far the biggest switchboard yet. Puzzled, the three moved forward and studied it silently.

It was dominated, amongst a stubble of plugs and buttons, by seven massive switches, all of them combination-locked.

"Looks to me," said Rod slowly, "as though this switchboard is the key-board to the whole lot. The others we've seen are probably released when this one is. I don't pretend to know how to begin—"

"Look!" breathed Eva suddenly, with a hoarse little gasp.

The urgency in her tone forced Rod and Rengard to twist round. The children gave little cries which were unmistakably of surprise. And there was reason; for lying close to the wall of the huge place was a broken skeleton.

Immediately the Earthlings were beside it. Rengard hovered over it with brooding brows; Rod fingered the dusty bones. Though it had fallen apart with age the skeleton's outline was still distinguishable. It possessed a surprisingly large skull, big chest, spindly legs, had probably been owned by a man seven feet tall.

Rod stroked his chin thoughtfully; Rengard scratched his fiery mop.

"The only remaining evidence of people outside of these children," he breathed, gazing at them as they

squatted on their haunches watching the proceedings. "Just what is the inside story on all this, I wonder?"

"Only way to find out is to adopt your method and learn the language," Rod answered briefly.

"Yeah—later on. More exploring to be done yet. Come on."

They left the building slowly, and as usual the children followed them in their journeyings. They examined buildings obviously designed for residence, others for storage, then one that was a masterpiece of telescopic and radio skill. The entire mass of apparatus was quite recognizable—but locked. Still another building was piled to the roof with armaments. There were tens of thousands of searchlight objects that were probably heat rays. Crate upon crate of blue metal contained gray cylinders that looked suspiciously like bombs, but because the lattice tops of the crates were locked there was no way of finding out.

Then in an adjoining hall was something that made the three Earthlings stop dead, catch in their breath in amazement.

"Gosh! Space ships!" Rengard cried, staring on nearly fifty or so long ovoids, placed in orderly lines on both sides of a narrow gangway. Only for a moment did he stand drinking the scene in, then raced forward to the nearest one, fell back in bitter disappointment before closed airlocks.

"Locked again!" he groaned. "Did you ever see a city with such terrific knowledge and resources so completely fastened? Everything in apple-pie order—Lord knows how much power waiting to be tapped, and we can't do a thing about it."

Tireless with interest they wandered on again, the children chattering their strange language beside them. They went from one end of the city to the

other, glimpsed power rooms that housed locked engines of incredible power—and so finally arrived in an immense laboratory. Here again the machines were locked, but the numberless bottles and phials on the shelves were free. Rengard glanced at them, then turned to survey seven small tubes standing in a frame on the floor, tubes which were of some glass composition, shattered now from top to bottom with shards and splinters flung in all directions.

"Seven tubes," he muttered; then a giggling laugh made him swing round impatiently. His expression changed. "Seven tubes—seven children!" he breathed tensely.

"Great Cat, yes!" Rod gasped. "You—you mean you think that these kids perhaps came from these tubes?"

Rengard did not answer immediately. In silence he went round and peered into the phials and jars.

"I'm not so hot on chemistry of Mars, but carbon's the same the universe over," he remarked at length, turning. "These phials and things have carbon in its various forms inside them. Life is impossible without carbon, of course—flesh and blood life, for instance, like these kids and ourselves.

"I believe it isn't impossible for Martian science to have created life—these children—with the machinery we see about us. Possibly the children were born in these tubes, burst them open and stepped out like a bird breaks from its egg, only to find . . . Only to find themselves alone," he finished, thinking.

"Then why didn't they die?" demanded Eva. "I never heard of a baby looking after itself from the moment of birth."

"Perhaps these weren't ordinary babies," Rod pointed out.

"More I see of this place, the more

I'm reminded of the *Mary Celeste*," Rengard observed. "I'm starting in right now to learn the language. We'll make our headquarters here and eat fruit. Until we find out what *juzaf* is I guess we'd better leave that water alone. Juice can take its place."

He turned to the children, motioned them to him. They came forward readily enough, squatted in a circle around him as he sat down on the floor to begin his laborious task.

Picking the things around him as examples, he began—and persisted . . . And persisted.

In the course of the next few days, reckoned from Rod's watch since day was of course perpetual, strange changes came over Rengard. For one thing he ate three times as much fruit supply as Rod and Eva; he drank juice until it seemed he would never stop. Nor was it entirely explainable by the terrific heat.

Outwardly, too, he was different. He exuded a sense of radiant well being and activity, slept but little, spent endless hours questioning and cross questioning the often sleepy children who now seemed to have come to regard the laboratory as their new home.

Their intelligence was by no means outstanding, and that was why it seemed so extraordinary to Rod and Eva to behold Rengard's mind leaping all the defective gaps. He conducted himself like a genius, hurdling with incredible mental agility from one point to another, piecing together the Martian language in double quick time. The first thing he discovered, to his discomfiture, was that "*ulfa juzaf*" meant "*death liquid*," though exactly why he couldn't then determine. Trouble was, the children still had a good deal of baby talk, which rendered his task all the more difficult.

None the less he could speak it haltingly within two weeks. In a month,

still giving off an aura of accomplishment and purpose, he was proficient enough to teach Rod and the girl. They found it more difficult, were only assisted in understanding by Rengard's brilliant little touches to bridge the hard gaps.

When he rested from his linguistic activities he roamed the great empty city alone, seemed to arrive at certain conclusions, for on one occasion he remarked,

"It's pretty obvious where the Martians got their power from. Those machine rooms give the answer. The whole planet can be used as a generator. The site of the master plant is directly in line with the Martian north Magnetic Pole. The planet in its revolution against the time-space ether generates power like the armature of a dynamo. That means endless and terrific power, more than sufficient to drive the city's many mechanisms."

"And how do we use it?" Rod asked bitterly. "We still don't know and these kids can't tell us anything even now."

"That's the trouble . . ." Rengard leaned against a bench and rubbed his brow mystifiedly. The children gathered round him quietly. Again he asked them the question he had so often repeated.

"Where are your parents? How did you get here?"

As usual, the shrugging of slender, blue-tinted shoulders; the frankly innocent looks and giggles.

"The machines!" Rengard persisted. "How do we make them work? Where did the men go that built them?"

"Drinking—much *juzaf*," answered the pretty little girl who seemed to have appointed herself as leader. "They died."

"Huh?" Rengard looked at her sharply. Catching her hand he drew

her to him. "Listen, youngster, I know by now what '*juzaf*' means—that it's a death liquid. But why? Can you explain that?"

The child screwed up her face in thought, seemed hard put to it. Then struck with a sudden inspiration she pointed to Regnard's temples. "*Juzaf* cause that," she said haltingly.

Rengard stared in wonderment, then Rod gave an exclamation:

"Say, Ren, looks like some radiation's getting at you, else you're worrying too much. You're going gray around the temples!"

"So you are!" affirmed Eva wonderingly, pulling a hand mirror from her blouse pocket. "Here, take a look."

Rengard stared at his flaming mop his rosy face and bright eyes. The whole picture reflected back at him was one of almost marvelous good health. But certainly gray hair was creeping along the sides of his head.

"Old age," he growled, handing the mirror back. "Not that it matters anyway."

He pondered for a moment, said slowly, "You know, I'm beginning to get the hang of several of these machines, and yet I don't know exactly why I should. I've had no experience of them. Just the same, something's happened to my mind recently. I'm able to figure out quite a lot of things I couldn't manage before. Notice how easily I learned the Martian language for one thing? It's as though I've suddenly turned into a genius for no particular reason, and—"

He broke off, stopped dead, clearly struck by a sudden amazing thought.

"Lord!" he breathed. "I wonder . . .!"

He straightened up suddenly. "You two carry on; I'll be back in a while. I've an experiment to make that may settle this mystery once and for all."

He took an empty glass phial from

the rack behind him and went out of the laboratory with swift strides. The children went skipping merrily after him.

For several days afterwards Rengard became completely absorbed by mysterious work of his own. Eating ravenously at intervals, swallowing quarts of fruit juice, he essayed but few remarks. His whole concentration seemed to be absorbed.

He worked with phials of water from the lakes and pools in the surrounding jungle, brought all his newly found strange genius to a problem that was entirely his own.

Day by day he was visibly different. The vigor seemed to be going from him. Streaks of gray had passed from his temples to encompass most of his red hair. The taut freshness had gone from his face; it was haggard and curiously worn.

Investigating the city on their own, Rod and Eva felt profound concern for their comrade. They knew something was radically wrong with him—something outside the scope of normalcy.

"Can't be anything in the air," Rod commented. "If it was we'd look the same, and we're both all right."

"Can only be that water he drank," the girl said worriedly. "I think that's what he's analyzing now. Remember that we were interrupted before we drank any—"

"But surely it couldn't produce genius?" Rod meditated over that possibility, then shrugged. "Oh, hell—I give up!"

He stared round the great space ship hangar into which they had come. "If only there was a way to unlock all this," he sighed regretfully. "We thought knowing the language would do it, but I guess we're as far off as ever. A whole nation's resources tied up! Think what we could do to Holroyd if we could get this stuff into action!"

"I know . . ." the girl said quietly, then tugging a pencil from her pocket she started to check off the inventory she had been making of the city's resources—mainly for her own amusement. "This city sure has everything," she murmured, ticking off her items. "Space machines, robots, syntheticising apparatus, laboratories, radio, telescopes, armaments—"

She broke off in surprised annoyance as the boy beside her suddenly snatched eagerly at her pencil and started to examine it quickly.

"Hey, give that back!" Rod snapped, in the child's own language. "Come here!" He lunged forward, but Eva caught his arm tensely.

"No—wait a minute, Rod. He's never seen a pencil before, remember. He wasn't with us on other occasions. Seems silly for a lead pencil to interest him in such a city as this, but—"

She broke off and tore a leaf out of her notebook, handed it over. "Draw. . . ." she encouraged.

The boy looked at her with his big blue eyes, then with a slow nod squatted on the floor. He thought for a moment then rather haltingly began to draw the clumsy outline of an object that was entirely obscure—at first. Eva stooped and watched intently.

"Look here, is this a drawing lesson, or what?" Rod demanded impatiently. "We'll get nowhere just standing around watching this kid draw. Besides—"

He paused, bent down beside the girl, then with a cry of amazement he snatched the paper up and stared at it.

"See what it is?" he gasped.

Eva shrugged, her blue eyes puzzled. "Looks to me like some kind of pyramid with symbols on it."

"Anything but!" he retorted, and bending down he clutched the child's wrist and jerked him to his feet. "This way!" he snapped, and whirled the sur-

prised youngster out of the building at top speed, Eva following behind with a baffled frown. In five minutes they had gained the room with the central switchboard. Rod stared at the massive panel, then back at the drawing. The girl looked over his shoulder.

"Why, it's a pretty fair representation of the fifth switch!" she cried. "The symbols in between might pass for combination numbers and— Rod, do you think that—?"

"Listen, kid!" Rod caught the youngster's shoulders earnestly. "Do you know anything about this machine? These switches?"

The child hesitated, then pointed to the fifth switch. Without wasting a moment Rod caught him up in his arms, held him so that his slim fingered hands could touch the profoundly complicated combination lock that held the switch in place.

There was something uncanny about the way those childish hands went in and out of the rings and bars and loops forming the combination matrix—but at last, after five minutes of unerring work there was a sharp click and the lock opened!

"He did it!" Rod gasped blankly. "Well, by all that's incredible! How in the name of wonder—?"

He put the smiling child down and rather hesitantly pushed the switch into place in the lower contact blades—but nothing happened. The machinery in the great room, the forest of tubes, remained motionless.

The girl gave a little shrug. "Obviously one switch alone is no use—all the lot have evidently got to be in circuit before the thing can work. Odd, though, that this kid knew all about that one switch. Unless . . ." She wheeled round, startled.

"Seven switches—seven children!" she cried hoarsely, eyes wide. "Rod,

what fools we've been! It's so obvious. Somehow these children are connected with the board—they're living keys! If this chap knew how to unlock switch Five, it's a cinch the other six in the lab with Ren know the rest between them. Come on, we've got to get them—"

She swung round to head from the building, then stopped in her tracks as Rengard suddenly appeared with the other six children grouped about him. He moved slowly, with obvious effort, clutching the machinery for support as he came forward.

CHAPTER IV

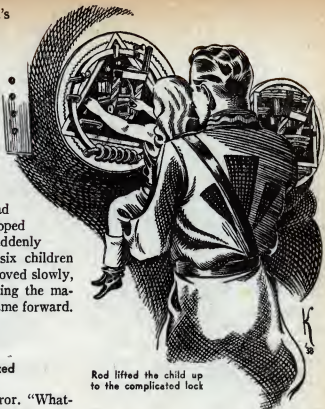
The City Is Unlocked

"REN!" Eva cried in horror. "What-ever's wrong?"

She stared in alarm, with Rod right beside her. The children caught something of their anxiety and their smiles vanished.

For Rengard was an exceedingly old man! His hair had changed to snow white, was even missing places where the baldness of extreme senility showed through. The formerly strong hands were bony and veined; the face sunken and bloodless. Only a slight semblance of the old fire remained in his vividly dark eyes—the eyes of a young mind housed in a tottering frame.

"Well," he whispered, leaning against a machine, and talking in a voice that was thin and reedy, "I've solved part of the mystery, and at the same time discovered how darned right this kid was when she called Martian water a death liquid. I—I haven't long to live, so listen—carefully!"



Rod lifted the child up to the complicated lock

Rod and the girl supported him gently as he sighed heavily. Silent, timid now, the children congregated in a little knot and watched with wide eyes.

"The—the Martians died because . . . because of heavy water," Rengard whispered, smiling twistedly with bluish lips.

"Heavy water?" Rod mused, frowning. "Seem to have heard something about that some place—"

"Of course you have. There were—were scientific references to it on Earth a very long time ago. Way back in the early thirties, before the war came . . ." Rengard took a deep breath. "That water I drank was heavy water. Laboratory tests prove it.

"Well?" breathed Rod tensely.

"I'm—I'm coming to it. . . ." Rengard said heavily, talking again with noticeable effort. "The ponds and lakes

down—down here are heavy water.*

"The Martians, constituted like us to take ordinary water, could—could not cope with heavy water. Instead of them just being stimulated, they were overstimulated. Over stimulation leads to a progressive speeding up of the body's molecular activity. They ate more and were given what seemed. . . . Were given what seemed to be an extremely good state of health, a—a sharpening of mentality amounting to genius.

"As I see it, with this new found genius they built this amazing city and fixed its machinery, until they suddenly began to discover that it was not anabolism they had got, but extreme katabolism, the breaking down of bodily structure. The—the same thing that's gotten into me through drinking undiluted heavy water when we first arrived.

"The Martians were burning up, living at a furious rate of energy, skipping whole years of their life span, cramming entire masses of knowledge into a short time, until the body, no longer able to resist this telescoped evolution, broke down and plunged them into old age and—and death. You—you understand?"

"Yes—we understand," Rod whispered. "But, Ren, the forest? That grows round heavy water lakes but shows no signs of anything unusual."

"Plants are different," Rengard muttered. "Probably their constitution is

such that they can break down the isotope into normal water. . . . Plants are natural chemical factories, remember; can do things a human body cannot. That's the only way I can explain it."

"And these children?" Eva asked. "They're all right."

"Why not?" Rengard whispered. "They know—don't ask me how—that the water's fatal. They only—only use fruit juice which shows the plants overcome the trouble. I—I haven't solved the mystery of the children, but I'm sure the last Martians suddenly realized, like me, that death was very close and took rapid measures to preserve an achievement they could never possibly use. . . ."

Rengard stopped. His voice had been sinking throughout his last words; now it trailed off altogether. He sighed heavily, slumped from the machine he had been leaning against and collapsed limply on the floor.

In an instant Rod caught him up in his arms, stared down on the waxen, shrunken face. His fingers felt the skinny wrist.

"Dead," he muttered, staring up into Eva's horrified face.

She said nothing; the whole business was too tragically swift for words. The seven children kept silent. It was obvious from their expressions they had no idea what it was all about.

"Nothing we can do except bury

* Rengard's discovery uncovered the mystery of the Martian race's vanishment. Obviously forced underground by expiring atmosphere on the surface, they constructed canals from the polar caps before they came below. The canals had water pipes leading down to their new home. And thus, perhaps for ages, the race lived below, out of contact with the surface, until even the canals dried up as the pole caps receded still farther. But the water balance in the cavern by that time had been fixed.

But during the ages the atmosphere thinned out, something occurred that the Martians did not suspect. Intense electric radiations from the sun, unhindered by atmosphere, reacted on the canal

waters. These radiations, pouring endlessly out of an always clear sky, produced electrolysis in the Martian water. Not all at once, but by gradual changes, so gradual that the Martians never noticed the difference. For that matter, there is hardly anything different in the taste of heavy water, only a slight bitterness.

Heavy water is called such because it has more electrons than normal water. The exact process produced by the solar radiation broke down the water's oxygen and hydrogen and left a residue, an isotope. That isotope is heavy water. Little by little the change spread through the entire water and gave it more electrons than it should normally have.—Ed.

him," Rod muttered. "Poor old Ren! He passed out like a true scientist, anyway. . . ."

Slowly he got to his feet, shook off the lethargy of sorrow. "Better give me a hand, Eva. Afterwards we'll see if the rest of these kids know anything about this switchboard. Then maybe we'll solve the rest of the mystery. . . ."

They buried Rengard in the jungle, recited a simple service over his grave with the children around them. Then they returned to the city, had a further meal of fruits, and started anew on their line of discovery.

One by one they tested the children; and one by one it became revealed that each child had a perfect knowledge of one switch. First the boys, then the girls, unfastened the highly intricate combinations as though it were literally child's play. Six of the switches were accordingly closed into contact, but at the unlocking of the seventh one Rod hesitated and glanced uneasily at the girl.

"Ren figured that this entire planet's resources worked by planetary dynamo," he muttered. "What's going to happen if this switchboard starts everything going? We might bring the place down! It's pretty certain this last switch will make this board start working, then things will begin to happen."

He looked uneasily at the titanic circular disk in the midst of its magnets. It seemed in some way to suggest the very matrix of the whole city's resources.

"After all," Eva said slowly, "we can't be much worse off anyway. If we don't throw that switch we can stick around in this prison of knowledge until we die. Better close it, and trust to luck what happens. . . ."

"O.K." Rod's fingers tightened on

the heavy bar. He tensed himself and held his breath as he closed the copper blades. A little shower of sparks spurted from them. Gingerly he stepped back and looked anxiously around.

A low rumbling was creeping out of the heavy silence. The myriad small machines grouped about the giant metal circle started to hum with sudden power—the ceaseless power of a planet's own electricity generated by its own revolution, passing thereafter throughout the length and breadth of the huge city.

The noise increased, rose to the whining hum of a power house. Heat began to rise on the already stuffy air. The masses of banked tubes filled with luminous life. The horseshoe magnets glowed with somber redness.

The children gave little cries of fright, clung nervously to the grown-ups. Rod gulped and felt his forehead was wet; Eva shot him an anxious look.

"Wish I knew what was going to happen—what it's all about?" he breathed, staring at the filigreed circle in front of him. "Reminds me of a stone starting an avalanche. . . ."

He became silent again, desperately uneasy. The machines had a fixed note now—a singing throb of power that evidenced perfect engineering, of gears smoothed and lubricated to be almost frictionless. Then above the whining came another sound, of heavy clanking, coming nearer.

Rod swung round, started violently. Two robots entered the great place advancing steadily on their metal feet.

"Hey, wait a minute!" he gasped hoarsely, as they came invincibly forward. "Stop, confound you!"

They stopped dead. Rod stood blinking at them and their lensed eyes stared back, probably photographing every movement he made.

"Say, they—they obeyed!" he stam-

mered, turning. "I just wonder if—"

"I've got an idea!" Eva said suddenly, and swinging round she stared at the great circle of filigree metal, said sharply, "Take four paces to the rear—March!" Then she turned round again and watched with a triumphant smile as the robots faultlessly obeyed her order and halted.

"Voilà!" she cried.

"But how—?" Rod gasped, in wonder. "What makes 'em tick? How do they do it?"

"Just a hunch, and it worked," she answered lightly. "This city, Rod, is a flawless arrangement of machinery, geared to operate not by ordinary hand action but by thought waves! That isn't so unusual; telepathic experts on Earth can accomplish similar feats in an elementary style. . . . This central thing here with its meshed face is, I'm convinced, a magnetizer. It receives and holds the tiny electrical impulses of thoughts, just like a phonograph record receives notes. In the same way it amplifies the thoughts and radiates them. One thing is obvious. These robots have telepathic pick-ups responding to thought wave stimulus. The language doesn't matter; a telepathic command is the same in any language."

"If you're right, why did only these two come along? What about the rest of them? Why not the whole army?"

"Probably because they have different duties. These two probably respond as servants—not for instance as soldiers, or anything like that. Don't you remember saying you wished you could understand what was going to happen, what it was all about? Well, probably these two can explain and that's why they came. After all, you gave an unintentional order. . . ."

"Well I'm damned!" Rod looked puzzled for a moment, then gave a discomfited grin. "Darned uncanny, if you

ask me. Beats me how anybody could think up a city as perfect as this one."

"Why not? The Martians were probably far ahead of our science in any case, and when they got genius added to it—Well! There would hardly be anything beyond them. . . . Rod, we've got a whole city ready to obey us; we've got to act wisely. Here's to seeing what we can find out. . . ."

The girl turned back to the Magnetizer, said steadily.

"If you two know the secret of this city, know what everything is about, I command that you explain it to us!"

The robots advanced instantly at that, extended pincer hands and grasped her and Rod by the arms. They struggled a little for a moment, then as they realized no harm was intended they submitted quietly to being led out into the street. In breathless wonder the children came trailing on behind.

"Nice trick you've pulled!" Rod growled. "Lord knows what they'll do to us."

Eva smiled confidently. "They'll only do as they've been told. Machines can't reason. Unless I'm mistaken we're heading back to the laboratory. . . ."

She was right. Without pause the robots marched them into the place, released them and walked over to one of the massive machines. It was unlocked now; everything was unlocked. The whole Pandora's Box had opened.

With quick movements the robots switched the machine on, stood aside, and became motionless. . . .

CHAPTER V

A Voice from the Past

ROD AND EVA waited, hardly knowing what to expect. Then they started forward a little as a concealed loud speaker inside the machine started

to hum powerfully. Followed a clicking, probably a recording tape sliding into place. A deep voice started to speak slowly, in the Martian language. The two waited, tensely listening, stumbling here and there over a word. To the rear the children leaned forward in sheer awe.

"By all the chances of Nature and cosmos," the voice said, "It will probably be you seven children, grown to adult life, who will hear this, my voice, for the first time. Listen with great care! You own a city, the heritage of your creators. You are not natural children; you have no parents. You are synthetic, born of a test tube. When a race is all but dead and must have successors, synthesis is the only course. As I record these words you are still embryos in the test tubes—but you will break free of your glass prisons, will develop, will live. . . .

"Your brains, designed to retain magnetically produced impressions pre-natally created, will be your guardians. By common impulse you will break free of your glass prisons, will live for many months on the carbohydrate deposits left around you in the laboratory.

"When that is consumed your minds will naturally lead you to fruits and their juices. You will live on them, grow strong on their nutriment, will fashion clothes from the leaves of the trees that bear the fruit. Why will you do this? Because it is impressed on your brains as a given factor that you *must* do so. It is a command, an inescapable urge. Because of the bodily construction we have designed for you, you will never touch water. It is rank poison. . . . Forgive me if I talk to you as yet unborn. I can hardly visualize you as adults, listening to me now.

"You are synthetic successors. Deep too in your brains is imbedded a certain combination code; each one of you,

from the moment you grow old enough to use your hands, will have this knowledge perfectly clear—the knowledge of the seven combination locks which seal the city.

"When you reach a period when puzzlement causes you to investigate, you will inevitably turn this knowledge to account, will unfasten the city in which you live. And because each of you have this separate knowledge it will save you warring and fighting among yourselves. Without all seven of you, the city can never be unlocked; instinctively, intuitively, you all know that. But now, because you hear my words, you have reached maturity, and unlocked the city. My voice speaks to you though my body has long since become dust.

"The city is yours. Build out of it a new heritage. It has everything you can require. Supreme genius built it for you. Train your thought waves on the central telepathic brain pan and robots of varying grades, their reception units geared to different telepathic orders, will obey implicitly.

"Both your sexes have male and female organs; you are not neuter. Marry; beget children—or if you desire, create them synthetically. The two servant robots will show you the formulae for life creation if you wish it. It cannot be done mechanically. It demands your own hands and skill. Attempt it only after long study. Your children, like you, will be non-water drinkers. That is, water will only be taken after natural filterization by plant life.

"We know now that heavy water is the cause of our downfall; your brains will know it, too. For generations vast internal lakes will remain. You will build new canal tracts from the Poles, allow the forests to break the water down to normal. If you choose you can even make the water normal by

scientific methods, though it is probable that with your coming the age of water drinkers has passed away. Had we realized in time that we were dying and not gaining eternal life and genius, we would have forced the water to normalcy. The knowledge came too late.

"You need not ever fear invasion. The city is prepared with armaments against any possible interplanetary attack; though we do not for a moment believe you will have that to contend with. Only perhaps the third world will cause you trouble in the future. Be ready for it.

"I, the last of the race, salute the first of the new race . . . Salutations!"

The mechanism clicked and became silent. Rod arose from his deep thought and looked at Eva inquiringly, then at the silent children.

"Looks like we stepped in and anticipated things," he said at length. "These kids would have done what we've done in a few more years."

"Does that matter?" the girl shrugged. "We're not going to deprive them of anything—but we're certainly going to make use of what we've found. You realize of course that with all this at our command we can do anything? Even return to Earth?"

"And death?" Rod asked slowly. "Oh, no; there are better ways than that. Matter of fact, I'm thinking about Calva Neil and his short wave radio. He's definitely on our side, of course. If we could only get into touch with him . . ."

"It's an idea!" Eva whispered, her eyes bright. "Ten to one he'll still be experimenting with that short wave radio beam system of his. If we could catch contact with it sometime and let him know we're still alive . . .!"

Rod clenched his fists. "Then we could get Holroyd just where we want

him," he breathed. "Right here under our fingers is a science mightier than anything he can devise. If we work carefully we can save the innocent and punish the guilty."

He fell to silence, pondering, thinking of the mighty radio rooms, listening to the dull throb of power from the city's vast engine rooms. Power—power— With which Baxter Holroyd, Dictator of Earth, had yet to reckon.

CHAPTER VI

Preparations for War

WITH the awareness of the supreme power they possessed, Rod and Eva spent a few further days taking stock of things under their command, particularly resources of attack. They studied too the central telepathic Magnetizer, discovered it was so sensitive that it reacted to thoughts from any quarter of the city, brought the required robots to do any possible service.

In consequence the two Earthlings found themselves installed in the living quarters of one of the great buildings, fan cooled to mitigate the heat of the energy-suns. Fruit food, made into all manner of delectable compounds by unfathomable machinery, was supplied to them at their slightest wish.

They had supreme comfort, reflected on the wisdom of the Martian scientist that had led him to lock up all this comfort until his synthetic followers were old enough to understand and not abuse its benefits. As it was now the children did not half understand it all, but for company's sake stayed near the two Earthlings, save when curiosity and remembrance of the recorded speech took them back to the laboratory to study curiously the dusty skeleton that represented the last man of their race.

Where the others had gone remained a mystery, unless, as Rod believed, the last scientist had rayed them out of existence to stop any spread of disease from decomposition.

Had they wished, Rod and Eva could have lived divinely in this flawless Utopia, as first lord and lady of a new era, only that their Earthborn heritage allowed them no ease. Persistently, the memory of enslaved Earthlings returned to them. They evolved plans, ordered the servants to direct them to the radio rooms, and once again studied the wilderness of radio machinery, so complicated that it took them weeks of reference to charts and plans before they began to understand what it really signified.

As they had at first suspected the vast instruments were not only radio devices, able to span to the outermost planet if necessary—but also televisionary and telescopic, working on some system of light-wave convergence that was beyond the understanding of anybody save a genius. Not that either of them bothered about the inner workings; they were faced with quite enough difficulty understanding the controls.

But results they got—by degrees. They trained the mirrored picture of Earth in one of the huge telescopic screens, brought it close enough to study its blurless, city-strewn image, the seas thick with maritime commerce, the air filled with speeding shapes. Progress, yes; all of it operating as usual for the good of one man—Baxter Holroyd.

Rod's gray eyes glittered as he surveyed the world. He glanced up at the girl and found her face expressing similar thoughts to his own.

"Revenge, eh?" he murmured, and she nodded stonily.

"Call it justice, Rod. It's more accurate."

He turned aside and studied the chart he had made of the Earth space ship's automatic control device. It gave him the precise wavelength on which to work, identical with the one Calva Neil had used to guide the vessel to Mars . . . Satisfied, Rod settled firmly in the chair before the banked switchboard and altered the frequency controls, hurled forth a radio carrier beam across the 40,000,000 mile gulf.

Another screen, immovably connected with the carrier wave, came into action and revealed the light-fast journey across infinity. Earth hurtled upwards out of the abysmal gulf: the carrier wave went clean through it, out beyond into space . . . Slowly Rod adjusted the controls, brought the carrier beam under control.

His fingers toyed over the switches he had learned to use. Silently he marveled at the static-free power of the apparatus. He spoke mechanically into the transmitting microphone.

"Calling Calva Neil . . . Calling Calva Neil . . ."

He kept up the call incessantly, the girl taking it over when he got tired. But between them it took two weeks before they got any response. Then it was in Calva Neil's own voice, obviously much puzzled.

"Calva Neil replying. Who's working on this wave system? Is it a cut-in, or what?"

Rod grinned with delight and stared at the screen. The carrier wave had picked up the inflowing light waves from the source of origin, revealed the blond-headed, ruddy cheeked young scientist seated in his laboratory, his baffled blue eyes searching his apparatus. Around and behind him loomed the essentials of his brilliant system. A brief shifting of the carrier wave brought in the entire laboratory; save for Neil it was empty. Therefore safe

to speak.

"This," said Rod slowly, swinging back to the scientist, "is Rodney Calab calling you—from Mars!"

Neil's amazement was so profound Eva burst into a laugh.

"It's—it's impossible!" he gasped. "And yet I . . . I was testing this carrier wave in readiness for ships to depart from Earth into the void. Ships bound for Venus as soon as they're ready. Somehow you must have gotten onto it as it experimentally reached to Mars . . ." He paused, rubbed his high forehead. "Guess I'm going nutty," he said curtly. "Whoever you are you're pulling a damned silly joke, cutting in on my length."

"If I told you you were rubbing your forehead with perplexity what would you say, Calva?" Rod asked calmly, studying the screen.

"Huh?" Neil stared wonderingly in front of him. "You don't mean you can even use spatial television?"

"I'm Rod, and this is Mars, and I'm using television," Rod said briefly. "Get that straight, Calva. There isn't any time to waste. You're alone, aren't you?"

"Sure. I'm working for Holroyd on this short wave for a space expedition and— But you know that. He may send for me at any moment. Say, I'm darned glad you're alive. How the devil have you managed to—"

"Keep quiet and listen!" Rod interrupted, then he went into a careful description of all that had taken place. The distant Neil sat in astounded silence as he listened.

"So now you know," Rod finished grimly. "Holroyd's reign is coming to an end. I want you to take action, take up the plans where I was forced to leave off. You've got to start an uprising, a revolution—anything. Get together all the people who are opposed

to Holroyd's rule and collect them so far as possible on the western side of the country. That'll fix Holroyd in the eastern half, and his men will concentrate there too.

"Definitely you'll start a war, but carry on with the assurance that I'll send forces to aid you. I want Holroyd's army drawn into the open so I can eliminate it—and the more you can gather in the west the better. I'll give orders for the west to be left untouched. That clear?"

"Clear enough," Neil nodded; "and I think I can manage it too. The cities to the west aren't as closely guarded by Holroyd's minions as eastern New York. Point is, are you sure of *your* forces? Remember that Holroyd has heat rays, bacteria bombs, gases, ultra fast rocket ships—"

Rod grinned mirthlessly. "Leave that to me. I've got stuff right here that'll turn Holroyd inside out. You just do as I say. When you're free to communicate again do so. You needn't give me any signal when to start; this telescopic apparatus gives me a very good view of all that's going on. Good hunting, old man!"

"O. K." Neil's face was set and purposeful. The vision of him faded as Rod broke the carrier wave transmission.

With hardly any intermission, sleeping in turns, Rod and Eva kept a constant watch on the telescopic screen, held Earth steadily in the field of vision in its journey through space—but again several weeks elapsed before they saw any sign of a change, and then it was sudden and violent.

Explosions vomited from various points of the United States, centered particularly in New York. There was evidence too of convergence of battleships towards the eastern shores. They were thick in the Atlantic. The air too was filled with hurtling, darting shapes.

"War!" observed Rod, lips tightening. "Neil's taken the plunge all right. Dictator armies versus the oppressed, with Holroyd at the head of the former. See those black bombing planes? They're his. The white ones are Neil's own—the ones we were going to use when we were captured. Now we can distinguish between them we can get busy."

He issued a sharp command. "Army, prepare for action!"

It was no meaningless injunction he uttered. Through the intervening time he had learned enough of the vast Martian robot army to realize their artificial brain pick ups were geared to all militant orders. Naturally, they could not reason, but they could follow out a whole chain of orders given the initial stimulus. With their actions watched in a televisior screen they could be controlled to do anything, supreme in the fact that they were deathless, unerring.

Turning a little, Rod switched on the short-length televisior wave, directed it to penetrate to the robot hall two blocks away. Activity was everywhere in the great space. The robots, the command received, were marching. In ten minutes, under further orders, they arrived in the space ship hangar, paused in orderly groups before the fifty vessels. As Rod had reason to know, they were already equipped with all manner of war devices; the armament room's supplies would not need to be touched.

"Enter forty nine ships!" he ordered; then glanced up at the girl. "The fiftieth one is for us," he explained—and watched the airlocks shut like a row of eyelids.

"Fire your fuel chambers!"

The fuel, which was apparently a rich magnetic oxide, fired not by flame but by a complicated pressure process, hurling terrific recoil power into the gleaming tubes. At Rod's order all tubes

flared redly, filled the gigantic place with poisonous blue vapors. Again he snapped an order. The roof slid away under a robot's tug at a lever.

Gently, ordering and countermanding, maneuvering literally with his thoughts, Rod forced the robots to raise their machines in a glittering armada—upwards through the roofless opening, then onwards toward the mighty shaft which gave egress to the surface.

The machines traveled swiftly, held perfectly in the televisior screen. Television followed them as they swept up the long shaft, outwards over the desert, up into the star ridden void towards the green star of Earth.

Rod sighed with relief. The most difficult work was over. Forty nine avengers were on their way.

CHAPTER VII

Holroyd's Defeat

ONCE the machines were steadily on their way, requiring but little actual guiding in empty space, Rod turned his mind to other things and left Eva in charge.

The weapons owned individually by each ship were not mere ordinary implements of war, but devices infinite and terrific in potency. For one thing, each vessel was supplied with a power pick up, by which it received power from Mars itself, sent over another radio beam—power born of Mars' magnetic currents, concentrated at the North Pole with terrific intensity from the nickel iron under terrific pressure deep in Mars' core. Power begotten of the planet's dynamo like qualities against the ether.

This power, which gave the city its strength and resources, also possessed an inconceivably strong surplus, which, passed through magnets, transformers

and induction coils could be given to the armada over radio beam and thus utilized. Rod had only the vaguest idea what this power might do. That it fed the vessels' armaments he already knew, but to what extent in action he could only picture.

Satisfied that the power transmitting apparatus was in order, ready to be released by a robot the moment he gave the command, he returned to the radio room and took over the girl's work.

There was one advantage with the Martian vessels—the terrific speed they could attain and the impossibility of the occupants collapsing under the accelerative strain. So it was that the ships streaked across infinity at a speed nearly equaling that of light itself. The passage of forty five minutes revealed via the televisior that the Earth filled the whole field of view in front of them.

The telescope, on the other hand, revealed a flurry of excited action passing over Holroyd's army, concentrated in and around New York, then stretching half across the less congested regions of the United States to the opposing army of Calva Neil in the west. It was not a flurry that betokened a weakening of morale, but a sudden gathering together of massed forces.

The invaders had evidently been sighted. To question the why or wherefore of their coming was not possible in the urgency. But Holroyd must have wondered at the defiance of his orders when he called on Neil to stop the personal war and instead unite in common attack against the unknown enemy. Neil, knowing full well what he was about, bluntly refused, continued to harrass the Dictator's army, his white planes zooming and power diving relentlessly.

But on the ground he withdrew his warfare further westwards out of range of the battle he knew was to come.

Curtly Rod gave the order for power release, issued orders to his now forty million mile distant army.

"Remember to attack only the eastern coast and the black airplanes—no other . . ."

He waited a few moments. Martian ships and the darting, inquisitive invaders of Holroyd swarmed through the sky. From down below anti-aircraft devices stabbed upward with livid beams of violet. One Martian ship, caught amidships, crumpled instantly.

Rod set his teeth; the power would be there by now, ready for the fleet to utilize.

"Fire!" he commanded, and watched breathlessly with Eva clutching his arm.

The forty eight machines abruptly glowed deep violet. Energy, released by their power pick ups, encompassed them in a veritable shell, energy which forced the molecules of the ships' construction into such a tight interlacing, invisible shield that a heat ray was instantly deflected like water against steel.

In that instant Holroyd's fleet realized it was fighting something beyond its powers. The shattering strength of their flame guns, their mightiest shells, made not the least impression.

The Martian machines, incredibly fast, hurtled in and out of the slower Earth masses, flung forth ethereal waves that had the effect of destroying molecular cohesion and forced the vessels to literally fall to bits in mid air, dropping twisting, turning figures to the raging battle ground below.

Dark red rays, drawing their power from the inexhaustible source on distant Mars, belched abruptly through the Martian vessels' screens, stabbed to Earth. An entire army unit, struggling manfully with anti-aircraft devices in the center of New York, vomited skywards in a sheet of flame in which all

trace of matter had utterly gone. Instant conversion into energy was the only explanation, produced by still another ether vibration forcing electron and proton into contact and thereby canceling out atoms into splashes of cosmic rays.

"The tallest building below you—destroy it!" Rod commanded.

He knew that building; his face was rigid with bitter hate as he regarded it. Holroyd's Executive Building, having within it the Hall of Judicature. Also it was the spot from which he would certainly be directing operations.

Rod waited while his message flashed across space, then as it was received the impregnable Martian fleet swept round to obey. Here and there, essaying a last desperate attempt, the Holroyd machines hurtled up in a solid wall for a final stand. It was final indeed.

A blasting wave of destruction withered against them, sent them hurtling in all directions, smashed them, melted them, blew them into infinite nothingness. Untouched, glowing steadily, the Martian armada sliced through the barrier, swept down in an avenging horde on the tall tower of Holroyd's headquarters.

The tower vanished in a brilliant flash of light as nameless power snicked at it. Then, maneuvering round, twenty of the vessels trained the full force of their devastating powers on the edifice. Bricks, metal, all possible formation, lifted heavenwards out a mile deep crater! Dismembered bodies, debris and smoke spouted to the sky. The scurrying people around the building flew backwards under the terrific discharge of superheated gas and compressing atmosphere.

"Continue!" Rod ordered implacably; then turned a little as Eva grasped his arm.

"Rod, isn't it enough?" she asked in

a low voice. "After all, you have the mastery now and—"

"There are minions of Holroyd in that army," he retorted. "I'm going right through to the finish!"

He watched in brooding contentment as the armada returned to the attack—but the result now was a foregone conclusion. No ship, no human, could stand against fleshless robots, planetary power, and incredibly destructive devices. On the eastern side of America mile upon mile of battling men were incinerated or buried. Ships ripped to pieces, sank in boiling tumults.

In the air, black ships split in twain or fell, rays swaying crazily as they fell on the maddened hordes beneath. Blackness ate into the ground as it was literally burned into ashes under the feet of the demoralized thousands.

But, still true to orders, the Martians made no effort to attack the western side of the States, whither the survivors of Holroyd's army were painfully struggling, all desire for fight gone.

"It's massacre!" Eva said suddenly, as the last two black airplanes went down to the ruins below.

"Justice," Rod answered quietly—then he turned sharply as the remote control radio set suddenly livened on its signal tube. Instantly he closed contact.

"Yes?" And he had to wait for the light-fast radio wave to hurtle to Earth and return with the answer. On the screen appeared Neil's grimly triumphant face.

"Call an armistice!" he cried. "We've definitely won. What is left of Holroyd's army is on the run. We're ready for them if they ever get this far, which I doubt. Oh, boy, I don't know what you've got packed into those ships, but it sure is hell!"

Rod smiled faintly. "O. K., I'll have the ships descend and there wait for

further orders. I'm coming back to Earth with Eva at the earliest moment—"

"You realize, of course, what you've achieved?" Neil asked, his eyes shining.

"I guess so," Rod assented. "We'll bring living back to what it should be, where every man can have liberty. I've decided to lock up this city when I leave it. We've had our worth out of it, and it's not our job to interfere with the natural legacy of these Martian children. None the less I think they'll be useful friends to have. Their city here has such science that it'll be wise for us to cultivate it. And I mean *cultivate* it," he finished grimly. "Not use it for destructive purposes."

"Naturally, you'll be the new leader of Earth," Neil said quietly.

"I hope so . . . Well, Cal, that's all for now. You've done a swell job. See

you on Earth."

Rod switched off, turned to the girl, glanced across to where the children were watching with their usual silence. Then he said quietly, "You think it's our duty to lock this city when we leave?"

"Definitely," Eva nodded.

Rod turned aside, pondered for a moment. "Guess the robots and ships don't belong to us," he commented. "They'd better come back here." He broke off, said sharply, "Cease fire! Return immediately!"

"When they're back we can leave," he smiled. "And shall I be glad. I'm itching to get back to Earth for one very good reason—"

"And that is?"

"So I can have a darned big glass of water!"

Behind them came the sound of childish giggling as their lips met and clung.

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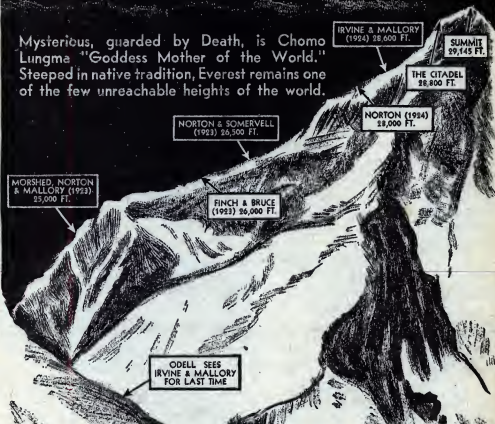
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RIDDLES OF SCIENCE

MT. EVEREST THE UNCONQUERABLE

Mysterious, guarded by Death, is Chomo Lungma "Goddess Mother of the World." Steeped in native tradition, Everest remains one of the few unreachable heights of the world.



UNCLIMBED, aloof, mysterious Mt. Everest towers into the Tibetan sky, offering to modern science one of the few remaining riddles of the world. Since the discovery in 1852 that Everest was the highest peak in the world, men have sought to conquer the snow-clad giant. None has ever succeeded. What mysterious guardian keeps inviolate the ultimate peak, upon which the eyes of man have never rested? For weird indeed are the demonstrations the mountain has given of its uncanny defense of its final ramparts.

In 1924, two intrepid scientists, Irvine and Mallory, made a record climb to a point only 600 ft. from the summit. They were never seen again. What happened to them?

On April 19, 1933, an aerial expedition headed by Blacker circled the summit and obtained pictures. But a terrific 150 mile gale buffeted them away.

Many others have tried to conquer the mountain, but death and defeat have stalked them. And yet the uncanny "plume" that whips from the summit for dozens of miles beckons them ever on.

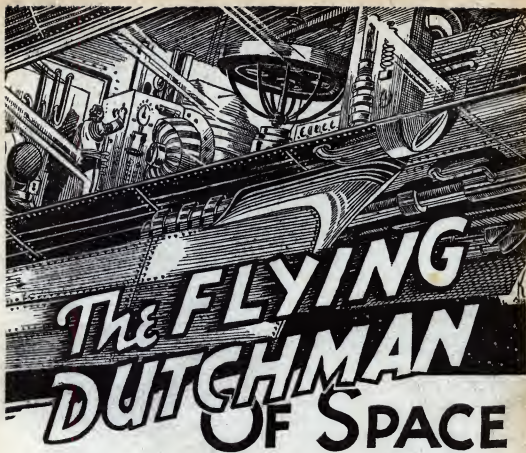
But in spite of the utmost assaults of science, the weird guardian of the mountain continues to hold triumphant sway over its domain of terrible winds, blinding infra-red rays, and unnamed menaces, an inviolate Citadel of mystery to intrigue the mind of man. What weird fate will the guardian inflict on future climbers?



The recoil of the
torch shot him away

By
**FREDERIC
ARNOLD
KUMMER JR.**

Into space he drifted, a tiny
mote lost in infinity, to be
snatched from death by a weird
ghostly derelict of the void



CHAPTER I

Cast Adrift

THE forecastle of the *Vestric* was dim, sombre, in the feeble light of a single thorium bulb. Blind shadows groped their way across the metal walls, obscured the faces of the men lying in the bunks. From the liner's main ballroom on the deck below came the faint tinkle of music, soft, dreamy.

Jan Herrick, staring moodily at the rivet-studded bulkhead of the forecastle, hummed the air in a low, nostalgic baritone.

"Moons over Mars, glittering stars,
Waters whisper in the Main Canal,

Dusty red plain, unknown to rain,
Where . . ."

"Bah!" Balt, the leathery, grizzled boatswain, sat up, swung his legs over the side of the bunk. "So it's crooners they're signing these days instead of A. B.'s! You'd sing a different tune, my lad, if you'd seen some of the things I've faced!"

"Space serpents, I suppose," Jan grinned. "Or maybe Flying Dutchmen."

"Aye, laugh!" The old man's voice fell into a hoarse whisper. "Laugh, since you know no better! Space serpents I've seen, once off Jupiter and once on the route to Pluto, great bat-like things with blood red eyes and bodies twice the length of this ship! And

aboard the same vessel, the old *Philos*, I've seen . . . the Faces!"

"The Faces?" a brawny engineer repeated, "Who . . . or what . . .?"

Balt pursed his lips, shot a stream of blue Jovian *teel* into the sand-box.

"White, pinched little faces," he said soberly, "like . . . like dead children, only their eyes are old as time. Outside the portholes you'll see them, beggin' piteous-like to be let in." The boat-swain shuddered and, with the two remaining fingers of his right hand, wiped sweat from his forehead. All eyes turned automatically toward the glass-ex porthole; only the familiar blue-black sky, stippled with brilliant stars, met their gaze.

A scornful laugh issued from Jan Herrick's bunk. He stretched his long, lean frame, brushed back his dark hair.

"You fellows believe that?" he demanded.

"Waal," one of the ordinaries, a drawling Venusian, shook his head, "you know the first maxim of space—'Anything can happen'. An' Bill Jensen, navigator of the *Goshawk*, swears he saw the Flyin' Dutchman one night not far from where we are now. Passed right close to it, he said. An old, old ship, battered and worn, doomed to drift forever in space. The crew are damned spirits who know no rest. Mortal bad luck even to lay eyes upon the Dutchman, so they say."

"Aye." Balt nodded ominously, the shadows flickering over his scarred face. "A vessel of death, piloted by dead men!"

"Of all the superstitious dopes," Jan yawned, "you guys . . ."

A quick shudder shook the *Vestric*; she staggered, plunged forward once more. The men in the fore-castle, half-dressed, were racing along the corridor when the general alarm sounded.

Jan climbed the iron ladder to the

boat-deck, took up his station beside life-car number three. The *Vestric*, her progress unimpeded, seemed to be in no danger. Jan, thinking of his warm berth in the fore-castle, swore softly. Ten cold, dragging minutes passed. Ahead, at car number one, he could hear Balt muttering something about "crooners and softies, not a real spacehand in the lot." Jan set his jaw grimly. He'd show that superstitious old fool! If he only had a chance to prove what he could do!

All at once Miles, the first officer, stepped out onto the boat-deck.

"No danger, men," he said crisply. "A small meteorite was somehow missed by our detectors, and buckled a few plates in the hull over the gymnasium. I have isolated the room by closing the air-tight doors. However, Captain Hale does not wish to inconvenience our passengers by depriving them of the use of the gym. If one of you will volunteer to make repairs . . ."

"I will." Jan stepped forward eagerly.

"Very good." The first officer nodded. "Get your space suit. You'll need a magnetic grapple and welding torch."

"Aye, aye, sir." Jan saluted, made his way toward the supply room.

Five minutes later he was ready. The bulky space suit hung limply over his spare frame, and the magnetic grapple, fastened by a long steel cord to his waist, dangled from his hand, its current as yet not turned on. In the other hand he held a small but powerful welding torch.

Jan was just approaching the air-lock when old Balt stepped up to him, eyes grave.

"Be careful, lad," he warned. "The torch recoil . . ."

"I know what I'm doing," Jan said coldly, snapping the heavy helmet into place. And as Balt tried to restrain him,

he shook off the boatswain's arm, stepped forward into the air-lock.

As soon as the inner door of the lock clanged shut, Jan turned to the outer one, drew it open. The rush of escaping air swept him forward to the entrance, forcing him to hang on tightly for an instant. Then, very carefully, he swung the grapple out and against the ship's hull, switching on the current as he did so. Highly magnetized, it clung tightly to the ship's outer shell.

Jan pulled himself forward, hand over hand, along the thin steel cord. Reaching the grapple, he snapped off the current, threw it ahead once more, and recommenced his progress, inching his way toward the stern.

The *Vestric*, at an oblique angle, was receiving the sun's rays on her under side. As a result, Jan was in total darkness, forced to use the gleaming searchlight mounted on his helmet. He swung his head slowly from side to side, looking for the broken plate. All at once he saw it, a large dent perhaps two feet square. And in the centre of the depression was the hole through which the air had escaped, a tiny crack only a few inches in length.

Jan nodded, grinning. The repair job promised to be easy. Fingers clumsy in their thick covering, he drew a short bar of steel from his capacious pocket, held it over the crack. Then, pointing the tip of the torch at the bar, he pressed the release.

Jan was not prepared for what followed. The recoil of the torch shot him away as far as the steel cord would permit, leaving him to dangle aloft like some ancient captive balloon. A sudden, unreasoning panic swept over him; he thrashed about wildly, jerking and twisting in an effort to seize the cord, pull himself back to the ship. All at once a sick feeling gripped Jan's stomach. The *Vestric* was no longer be-

neath him!

Frantically he glanced about. Stars, the black void, the great flame-rimmed circle of the sun . . . and nothing more! He was marooned in the limitless sea of space! A castaway!

A wave of fierce heat, penetrating even the asbestoid space suit, seared Jan's leg. The welding torch . . . still flaring! Hastily he snapped it off . . . and as he did so, the explanation of his predicament became suddenly crystal-clear. In thrashing about so excitedly after the torch's recoil had lifted him from the *Vestric's* hull, the small blue flame had touched the steel cord, melted it like butter, and cast him adrift.

Of course, his speed was still that of the ship, roughly a thousand miles a minute, but the torch's reaction had thrown him off at a tangent, so that he and the *Vestric* were diverging at a constant speed along opposite legs of a great triangle. Old Balt's warning words crossed his mind. If only he hadn't been so pig-headed as to disregard them!

Jan squared his shoulders. No use worrying himself with regrets. Better to figure up his resources, find out what chance he had. First air . . . that was the most important item. He glanced at the pressure gauge strapped to his wrist. Four hour's supply . . . under active working conditions. But here, motionless in space, he might require less. The absence of gravity would help, too, lessen the strain on the heart.

Jan reached up, twisted the valve until it was only half open. For the next few minutes he experienced a choking, strangled sensation, had to fight hard to keep from opening the valve to its full extent once more. Gradually, as his metabolism slowed down to a more sluggish tempo, he fell into a state of dreamy lassitude. It seemed to take hours, mighty efforts, to make the

slightest movement, but beyond that he was not greatly inconvenienced.

The air supply adjusted, Jan examined the contents of the space suit's emergency pocket. Tools for repair work, patching equipment for possible tears in the asbestoid, and several big *radite* flares.

For a moment he considered igniting one of the signal lights, then decided against it. Better to save them in case he sighted a ship. Not that it was likely. His absence from the *Vestric* would not be discovered for at least a half hour, by which time the liner would be many thousands of miles away. Impossible for them to find him, for he, traveling at a similar speed in some unknown direction might be anywhere within a sphere of a hundred thousand miles diameter. It was hardly possible that they would even trouble to make a search.

Jan shook his head disconsolately. There seemed little to look forward to. The asteroids, gleaming brightly ahead, could not be reached in eighty hours, let alone the eight he counted on. And even if by a miracle he *did* reach land of some sort, it would mean only a crashing collision. To fall, unchecked, upon a planet or satellite . . .! Jan laughed harshly.

Eight hours to live and he would be forced to spend them drifting in space!

For some moments he lay back, stared at the purple sky. Then, drowsy from the reduced oxygen, the warm rays of the sun upon his back, he fell asleep.

CHAPTER II

The Derelict in Space

IT was the click of the escape valve, loud in the hollow space helmet, that awoke Jan. Nor was his a particularly happy awakening; that sharp click in-

dicated that a stream of used air no longer pushed open the butterfly valve. Which in turn indicated that oxygen was not entering from the tank to force the foul air out.

Jan reached up, opened the intake wide. A few stray wisps of oxygen entered the helmet. He shook his head, grinning. Eight hours to live and he had spent them sleeping! Still, it was the most pleasant way possible, under the circumstances.

Jan glanced about. He was near . . . near in space reckoning . . . to one of the little asteroid worlds. Under half a million miles, he figured. Not that it mattered when . . .

Suddenly, out of the corner of his eye, he saw something that made his heart leap. A long, cylindrical object, gleaming dully in the sunlight. A ship! A ship whose grey hull stood out in sharp relief against the black background of the void!

With a frenzied wrench Jan managed to turn himself around. The ship was extremely close, not more than ten miles away. More, its speed must have been approximately the same as his own, since he was overtaking it slowly. No mirage, no delirium, this ship! It was a real, material object.

His hand trembling, he reached for the flares. Then, realizing the futility of using them on this sun side of the ship, he thrust them back in his pocket. As well try to signal with a flashlight on the sun-swept deserts of Mars. Jan frowned. At his present rate of speed he would overtake the ship in about ten minutes, pass it on a parallel route several miles off its port bow. Unless someone aboard were to happen to notice him. . . .

All at once Jan thought of the welding torch floating beside him. Using its recoil he might be able to change his course, approach the ship at an angle.

Jan aimed the torch carefully, pressed the release. A jet of blue flame shot from its nozzle and the space ship seemed to veer around to a position more nearly in front of him. Another jet of flame, and another. Now he had only to sit tight for a few minutes until he came alongside of the vessel, then attract attention by pounding on the portholes. . . .

Jan took a deep breath. The air in the space suit was rapidly growing foul. It would last only a few more minutes at the most. Still, that would be time enough to board the ship unless . . . unless. . . . His eyes, fixed on the vessel, narrowed.

There was something about her that seemed, well, sort of peculiar. Her design, for instance. Archaic, ungainly, as compared to the sleek modern liners. Ancient single-jet rocket tubes and curiously old-fashioned wind-vanes. The sight of that dingy grey hull against the dark, desolate sky filled Jan with a feeling of awe; indistinct shadows of recollection, dim, age-old memories, crawled through his mind. Suddenly he was thinking of Balt's ominous words: "A vessel of death . . . piloted by dead men!"

Jan laughed, weakly. Nerves and the lack of oxygen . . . that was all. Merely some battered old tramp. . . . Even as he tried to dispel his fears, that feeling of deep, intangible horror clutched with icy fingers at his heart once more! The ship was weird, somehow unclean.

He was near the vessel now, approaching it slowly. Its speed was only a few miles per hour less than his own. Jan could see that the hull was thick with cosmic dust, dented and bent from a thousand meteorite storms.

A cautious blast of the welding torch brought him alongside one of the big round portholes. The cabin inside, lit

by pale sunlight, was empty. Jan beat upon the windows with a frenzy of desperation. His lungs were bursting, his heart throbbing frantically. Flying Dutchman or hell-ship, it made no difference. Air . . . that was the only thing that mattered. He shouted wildly, uselessly, filling the helmet with noise.

Now he was passing the massive outer door of the main air-lock. The crude handle, guarded by a semi-circular wind shield, caught his eye. Jan reached out blindly, tugged at it. The door, unlocked, swung open. Scarcely able to believe his good fortune, Jan climbed into the air-lock, pulled the heavy door shut behind him. Staggering weakly, he snapped on his flashlight, examined the inner door. It was locked, securely. Jan groaned. Was he to die here, within the air-lock of a space ship, separated from air by only a half inch of steel?

Suddenly his gaze fell upon the torch, still clutched automatically in his fingers. Gasping, choking, he lit it, placed the tip against the lock of the door, keeping himself erect by a mighty effort of will as the flame bit into the steel. At length, just as everything was beginning to blur into unconsciousness, the door, its catch melted, swung open. Jan snapped back the heavy helmet, slumped to the floor.

For perhaps five minutes he lay there, gulping in the cool, clean air. He was still a trifle unsteady as he lurched to his feet, stepped into the corridor. The mustiness of age hung like a pall over the passage. It's rust-flaked walls were black with the grime of years; the sound of his own breathing seemed, to Jan, unaccountably loud. The nameless horror that he had sensed outside the ship was now magnified a thousand times. Frowning uneasily, he started to walk along the companionway, then froze into stiff immobility. Slow, shuffling

footsteps, coming nearer and nearer!

Suddenly, Jan was aware of something moving toward him through the gloom of the corridor. Something that crawled slitheringly along the floor, dragging a limp, distorted body. Rooted with horror, Jan could not move.

The Thing crept nearer. He could see a flat embryonic face, vaguely human. Through a tangle of matted hair tiny red eyes burned, and the crooked mouth, sagging open, revealed sharp, fang-like teeth. Huge, gnarled hands pulled it along; Jan could hear the long nails clicking like the claws of a beast upon the iron floor.

With the swiftness of a striking snake the crawling creature leaped, toppling Jan to the floor. A horror-packed, bubbling scream burst from the spaceman's lips, quickly stifled by the powerful hands that locked about his throat. His efforts to free himself were futile under the weight of numbers. Hot, fetid breath fanned his face; sharp claws tore at his cheeks. He could hear the drip-drip of his own blood upon the floor, then, more horrible still, a greedy gulping sound as one of the grey things lapped it up.

The cruel fingers tightened about his throat; he was just sinking into unconsciousness when he heard the sharp crack of a whip, a woman's voice, ringing sweet and clear along the corridor.

The heavy weight lifted from Jan's chest; there was a scurrying sound, the patter of feet, then silence. Groggily, he climbed to his feet, glanced about. Facing him was a girl, slim, pale, exotic. Her dark hair hung free about her shoulders, a soft background to her vivid cheeks, her scarlet lips. She wore a man's shirt and pants, held a long strip of leather in her hand.

"Who . . . who are you?" she whispered. "Is there a ship . . . at last?"

"No." Jan shook his head "I'm just

a castaway. Fell off my own ship, managed to reach this one."

"Oh!" There was sharp disappointment in the girl's eyes. "I had hoped at last to see the outside worlds and . . ." She broke off, noticing the blood on Jan's face. "You're hurt! Come . . . I'll bandage it."

Still somewhat dazed, Jan followed the girl along the companionway to a cabin adjoining the control room. Bright, clean, tidy, it offered a marked contrast to the rest of the ship.

"Sit down." The girl motioned to the bunk. "I'll get water, bandages." Quickly, deftly, she dressed the wound.

"Thanks," Jan smiled. "And now maybe you'll tell me who you are and what all this means."

"Me?" the girl muttered. "Why I'm Sandra . . . Sandra Flane. And this is the Martian freighter *Ella B*."

"And those . . . those things outside?"

"They are . . . or were . . . the crew." The girl's dark eyes were sad. "They're mad. Insane. Space madness. Cooped up aboard this ship for twenty years . . ."

"Twenty years!" Jan cried. "Good God! No wonder they've gone crazy! But you . . ."

"I was raised aboard. Don't remember anything else. This life is natural to me. You see, about twenty years ago the *Ella B*, a very old vessel even then, was commissioned to take a cargo of supplies to Venus. My father, Captain Flane, was in command, and since my mother had died a short time before, he was forced to take me along, although I was then only about two years old.

"Driven off our course by meteor storms, we approached the asteroid belt. And then, without warning, the fuel tanks exploded.

"I, of course, can't remember all this,

but Dad told me about it afterwards. Only a miracle prevented the ship from being blown to bits. As it was, the engine room was completely wrecked and the hull breached in several places.

"The crew worked like trojans to repair the leaky plates and managed at last to make the ship air-tight. But when we tried to radio for help, we discovered that a nearby asteroid, apparently of some radio-active substance, completely blanketed our messages. Our position appeared hopeless. No fuel, no way to call for help, several of the crew killed and many, like poor Hult who attacked you just now, permanently crippled. We still had our forward momentum, of course, but instead of going on into space we fell under the gravitational pull of the radio-active asteroid.

"Months passed without any sign of a rescue ship. Indeed, any vessel sighting us would have no reason to stop, since we had no means of signalling that we were in distress, with our radio blanketed by the electrical disturbance."

"But food!" Jan exclaimed. "What have you done all these years?"

"I'm coming to that," the girl said quietly. "You see, as our position became clear to Dad, he spent his time trying to find some means of prolonging life aboard this ship. So, utilizing the only possible source of energy, he constructed reflectors, solar energy machines, from the remains of our engines. These, while furnishing not a fraction of enough energy to move the ship, were ample to run the air-conditioning unit.

"But with the problem of an air supply overcome, food and drink presented a more serious one. The ship was stocked for six months, but Dad realized that if we were not rescued at the end of that time, we would starve.

"He had always been an excellent chemist and so, with nothing else to do,

he tackled a seemingly impossible task . . . the construction of what he jokingly called 'the mechanical vegetable.' He pointed out that there were aboard all the necessary chemicals, as well as water, and an unlimited supply of sunshine. On the planets, he reasoned, vegetables and fruit utilize these factors to produce an edible substance. It was simply a case of copying the plants and purifying, revitalizing, waste products by means of the sun's energy. None of the chemicals would leave the ship; they would merely be transformed. Dad's apparatus was really quite simple."

"Simple!" Jan repeated. "I don't see . . ."

"Surely." Sandra Flane nodded. "Take, for instance, the unit attached to the air conditioner. Foul air, consisting of carbon dioxide and water, is passed over a catalyst, and, with the aid of solar energy, broken down into water, oxygen, and sugar or starch, as desired.* And the other units work similarly to the one on the air conditioner. So by the application of a simple chemical process Dad solved the problem of food and water."

"Time," Sandra continued, "dragged along. Months, years. Dad taught me all he knew, how to operate the food and water machines. Then, slowly, the men began to go mad. Little eccentricities at first, growing more and more violent as time passed. Even Dad was beginning to show signs of a break-down when, about five years ago, he died. I alone, raised in this environment, was able to retain my reason.

"Now, since I am the only one who can operate the machines, feed them, the men permit me to live . . . but

* This accomplishment of Sandra's father is not at all illogical. For instance, the formula for sugar is $\text{Energy} + 6\text{CO}_2 + 6\text{H}_2\text{O} \rightleftharpoons \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$. And similarly, many other things might be synthesized.—Ed.

they are growing worse every day. Sooner or later they will forget that I control their supply of food. And then . . ." The girl's eyes were dark pools of fear. "If only there were some way to escape . . .!"

"Perhaps we can," Jan said thoughtfully, "if we can get beyond the field of these electrical disturbances, use our radio to . . ."

A patter of feet, a series of animal-like grunts, sounded beyond the door.

"The men!" Sandra snatched up her whip. "It's meal time! You'd better stay close to me!"

She opened the door, stepped into the passageway. Grey, gibbering creatures, their insane eyes glittering, cringed fawningly at sight of her, although shooting an occasional sullen glance at Jan. Sandra took his arm, led him down a flight of rusty steps to the huge engine room below. Tittering with shrill senseless laughter, the madmen followed.

The engine room offered mute proof of the explosion which had wrecked the *Ella B*. Twisted stanchions, blackened walls, and a litter of corroded metal heaped in the corners. The solar energy machines, however, lined up before the large quartz observation ports, gave a note of encouragement to the otherwise desolate scene. Burnished metal reflectors, focusing the sun's rays, supplied heat for a small steam turbine; crude vats, retorts, and distilling apparatus, bubbled and hissed.

Sandra, checking several dials and gauges, pulled a brass lever. A small chute swung down and a stream of blue-grey powder poured into a large cauldron. The girl turned a spigot, and pure, sparkling water jetted into the container.

The grey misshapen creatures moved forward eagerly, licking their lips, drooling. Sandra stirred the mixture

into a thick gruel, ladled it out onto dishes. The men wolfed the food ravenously, lapping up spilled portions from the floor, fighting over the remains in the vat. When at last they had finished this savage repast, they slunk away, one or two at a time, to the main deck above.

"Horrible!" Jan shook his head, shuddering.

"Beasts!" the girl murmured. "With beasts' cunning! Always lying in wait, hiding about in strange places! And the *Ella B*, a peaceful trader, carried no weapons! Soon now they will strike . . . and we will be helpless! Oh, if only we could get away!"

"Away?" Jan repeated, crossing the room. "Why . . . look here! The firing chamber and rocket tubes aren't damaged. Now as I see it, this ship is spinning about the little asteroid like a stone being whirled about on the end of a string. The string being, of course, gravitational pull. In such a state of delicate balance one small blast from the rockets would cut the string, send us off at a tangent into space! And once free of the asteroid's field, we can use the radio to call for help!"

"True." Sandra nodded. "But where can we get fuel for the rockets . . . even enough to produce the small initial blast needed?"

"Here!" Jan pointed to the scraps of rusty iron. "And here!" He waved toward the aluminum partitions. "The old thermite process! Fine aluminum particles, mingled with iron oxide, will unite if ignited by a hot flame! Unite with a terrific heat! Cylinders of water, packed in the oxide-aluminum mixture, would be instantly transformed by the tremendous heat into vapor, explode with enough violence to disturb our state of equilibrium, send us, like a stone from a sling, off into space free of the orbit."

CHAPTER III

A Desperate Battle for Life

THE weeks that followed were a tremendous cycle of toil for Jan and Sandra. The solar engine, harnessed to a circular saw, yielded a slow but steady stream of aluminum dust; the results of a whole day's work, poured into the huge firing chamber, seemed ridiculously insignificant. Even more difficult was the chipping of iron oxide, rust, from the ship's walls and floor. The radio set to be overhauled, the drums of water to be sealed, packed in the rocket tubes, the food to be prepared . . . they labored frantically, tirelessly.

And always the mad monsters that had been the crew kept watch upon them, screaming with demonical laughter, whispering hoarsely among themselves, creeping softly about like horrible, grotesque shadows. Life, to Jan, became a feverish nightmare, a nightmare haunted by red, glowing eyes, grotesque inhuman faces, and long sharp nails that scabbled like claws upon the metal floors.

It was a full month before the rockets were ready. The great firing chamber, filled to the brim with aluminum dust and iron oxide, was securely closed. A half dozen water "bombs" were placed in the rocket tubes, surrounded by the greyish mixture. Jan's hand shook as he turned the big solar reflectors, concentrating their beams on a single small point of the firing chamber. Slowly the spot on the thick outer casing began to glow red. Jan glanced at Sandra, white, hollow-eyed, standing by the ladder. From the deck above came a babble of incoherent conversation, angry growling.

Jan's gaze swung once more to the huge firing chamber. At that moment a thunderous roar filled the room! Another and another, six shattering blasts! The ship, caught in the grip of mighty

forces, lurched sickeningly, sent him spinning to the floor. Then, abruptly, silence, utter blackness.

Dazedly Jan picked himself up, helped Sandra to her feet.

"Oh!" the girl whispered. "I . . . I can't see . . .!"

"It's all right!" Jan's voice was strong with triumph. "The sun is on the other side now! Look!" He pointed toward the big port holes. Below, and a trifle behind them, was the little asteroid, already perceptibly smaller. "We're free, Sandra! Free!"

"Oh . . . Jan!" she murmured. "Then I'll see all those things that Dad told me about. Green fields, rivers, cities! Thanks to you . . ."

Jan's arm encircled her shoulders.

"God willing," he said soberly.

Two days passed before they could move the solar engines to the other side of the ship. The crew, deprived of their food, roamed the passageways like lean, hungry wolves, ominous, menacing. As soon as the machines had been connected and the men fed, Jan diverted the power to the small generators that supplied the radio.

Sandra, her eyes eager, hung over his shoulder as he snapped on the switch of the receiving set. Instead of the continuous crackle and sputter of interference there was silence, then, very faintly, the voice of a distant operator, giving a routine weather forecast.

"Clear! Clear of the asteroid's blanket!" Jan's voice trembled as he turned on the transmitting unit. "S.O.S.! S.O.S.! Freighter *Ella B.* calling for immediate assistance! Position 94 degrees, 10 minutes, 32 seconds sidereal lineation, zone 1047, sector 14A! Repeating, 94 degrees . . ."

"Jan! Think of it!" Sandra exclaimed. "People . . . sane people . . . to talk to! Comforts, luxuries, freedom! And medical attention, a good

sanatorium for the poor fellows of the crew! Perhaps they . . ."

A low growl sounded from the companionway outside. Jan glanced up, frowning. Hult dragged his twisted body into the control room; the madman's flaccid lips were flecked with foam, his face distorted with rage. Behind him were the others, wild-eyed, terrible, grey ghouls of hell.

"I heard her!" Hult screamed. "Sanatorium, she said! They want to take us back to Mars, imprison us! Place us behind bars! But we'll kill them before they can get help! Kill! Kill!"

Jan had barely time to leap to his feet before they were upon him, shrieking, howling. Long nails clawed his cheeks, rabid teeth tore at his flesh. He gasped and struck down two frantic creatures who flung themselves upon him, mewling and slobbering. Near the door he could see Sandra, swinging her whip desperately. The raving men were making no effort to avoid the lash, surging forward until they fell, stunned or blinded by her blows.

Jan fought his way toward the girl, striking out with both hands, forcing a path through the tangle of legs, arms, and bodies. Blazing wolfish eyes, broken black teeth, skinny, talon-like hands, swirling about in a human maelstrom. He had covered half the distance to the door when something struck him from behind, bore him to the floor. Then evil-smelling bodies were piling over him, tearing at his clothes, his flesh, battering his face with wild, berserk rage.

Time for one shout to Sandra, he had, before his breath was imprisoned in his chest and dacing lights began to flash before his eyes. An all-enveloping darkness was sweeping over him when he heard the heavy thudding of the whip and the merciless grip upon his windpipe

relaxed.

"Jan! Jan!" It was Sandra's voice, gasping, terror-struck.

Dazedly he staggered to his feet. The madmen, swept back by the girl's fierce attack, crouched on the other side of the room, gathering strength for another effort. Hult, his long arms dangling apishly, his face cut by the lash, was muttering thickly, drunkenly. "Blood . . . blood! Kill!"

"This way! Quickly!" Sandra clutched Jan's hand, drew him along the corridor.

Feet pounding on the metal floor, they dashed toward the freighter's main salon. Behind them gaunt, skeleton-like figures howled in hot pursuit. By a scant second they beat the maniacs to the big room, slammed and bolted the door.

"Safe . . . for a while at least." Sandra sank wearily into a chair, swept back her dark hair. "Perhaps they'll lose interest, when they get hungry . . . allow us to reach the control room, the radio."

"I doubt it." Jan shook his head. "They . . . listen!" In the corridor outside Hult's hoarse voice screamed orders; a moment later there was the clanging of metal as hammers rang upon the light aluminum door.

"It won't hold up five minutes." Jan turned to face the girl. "Looks like the end, Sandra!"

"No!" She crossed the salon, opened a large locker. It was filled with clumsy, old-fashioned space suits. "I've kept these ready, hoping for the day when we would sight a rescue ship."

"Good girl!" Jan climbed hastily into the bulky suit, opened air-valves of the others in the locker. "They might take it into their crazy heads to follow us," he muttered.

A splintering crash echoed through the room. The door, ripped from its

ancient hinges, toppled inward. A mass of frenzied wild-eyed humanity poured across the salon. Seizing Sandra's hand, Jan tore open the small emergency air-lock, slammed it shut, then opened the outer, and sprang into the void.

From that moment on things happened with startling suddenness. The impetus of their leap carried them off at an angle, away from the ship. In a few minutes, diverging from the freighter at constant speed, they were several miles away. Then, as Jan glanced back, something huge and black shot by them. The *Ella B.*, directly in the path of the meteorite, burst into a thousand fragments.

The collision was a sight which, to Jan, seemed almost unbelievable. No sound, no shock, in the airless void. Moreover, the actual break-up of the freighter was fantastic. Some of the fragments of metal, hurled off on the opposite side, disappeared instantly; others, approaching the castaways at approximately their speed, seemed to come apart with incredible slowness, drift gently toward them. A cloud of wreckage, mangled bodies, and chunks of meteoric stone, floated past. One large section of the *Ella B.*'s hull, some twenty feet square, passed within a few feet of Jan. Reaching out, he grasped its edge, pulled himself onto it, dragging Sandra with him.

"Easier for any ship to spot a large piece of wreckage," he said.

The girl, reading his lips through the glassex front of the helmet, nodded. She was pale, trembling, but her eyes were brave. Jan's hand, encased in the heavy space suit, pressed hers; his gaze swept the desolate black void about them for some sign of human life. The air tanks of these archaic suits were good for only two hours. Jan shook

his head hopelessly. Two hours . . .

The time passed quickly. It seemed as though only two minutes had elapsed before he heard the warning click of the butterfly valve. He turned to Sandra. Already she was having difficulty in breathing. Her eyes were like cinders . . . cinders set in dirty snow. Jan glanced about, but the steamy moisture on the inside of the old-fashioned helmet blurred everything. He choked, gasping to fill his bursting lungs. All at once he seemed to be falling, falling into dark nothingness.

The first thing that Jan saw on opening his eyes was Balt' scarred, leathery countenance. And beside him, Miles, others of the *Vestric's* crew.

"Balt!" Jan muttered. "Then . . . then it was all a . . . a dream?"

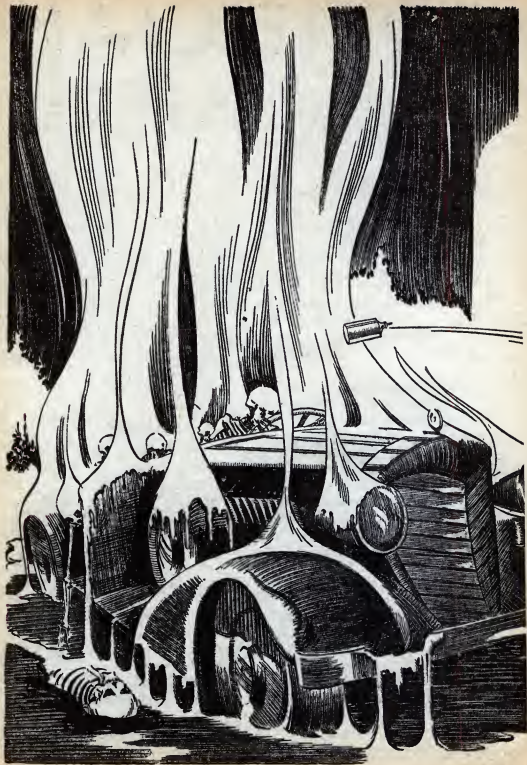
"Dream?" The old man chuckled. "People don't bring their dreams back with them!" He stepped aside and Jan could see Sandra, on a cot across the sick bay, smiling wanly at him. "Aye," the boatswain went on, "'tis past belief! We lose you on our outgoing trip, find you on our return! An S.O.S. call brought us here at full speed, and we picked up you two off a bit of wreckage. The lass yonder has told us where you've been." Balt wagged his grizzled head. "D'you still think I'm a superstitious old fool, lad, when I speak of Flying Dutchmen?"

Jan gripped the boatswain's gnarled hand.

"I was the fool, Balt. Pig-headed and stupid. I know now you were right when you said anything was possible in space." And his eyes, very tender, turned to Sandra once more.

Old Balt's seamed, weather-beaten face broke into a wide grin.

"Saw a comet pass across our bow last night," he announced. "Sure sign of a wedding!"



ARTIFICIAL By HARVEY EMERSON HELL

Unwittingly the preacher revealed the terrible secret of the catalyst gas, and the menace of an artificial hell faced the world

CHAPTER I

The Strange Gas

PROBABLY nothing ever would have been known of the remarkable discovery made by Adam Arden and his fellow scientist, old Dr.

Rushing wind tore at him
as he hurled the bottle

Adolph Krantz, until some commercial nitrogen fertilizer company announced its wares, had not fate stepped in and given the matter a far more serious aspect than either had intended. For that discovery was a powerful catalyst—a composite acid gas—which caused the oxygen of the air to unite explosively with the nitrogen content to



form a non-volatile oxide of nitrogen.*

The part fate played in the machine gun circumstances which ended disastrously for five of those involved, originated with old Dr. Krantz baiting a hell fire preacher who had been preaching in Cloverdale the previous summer.

Dr. Krantz, a confirmed atheist, badgered the man relentlessly. "Why," he declared with heat, "your hell might break loose any time now. Already am I perfecting a formula for making the air catch fire. What if it won't stop? Don't you see, you will burn up—all of us will burn up—without your flaunted day of judgment."

Then when the next day the old doctor had sought for the preacher to beg him to hold sacred the information given, the man had already gone to New York to preach. Hoping that no harm would come of it, he dismissed it from his mind.

Over in New York two men were at a secluded table in the rear of Joe's Place. Before them lay a gaudy hand-bill. While the two were talking in low tones, the smaller amused himself by poking a pin through the paper. Suddenly he fixed his gaze on the paper and stopped in the midst of a sentence.

"Herr Bock," he said, picking up the punctured paper, "look what this man says: *'Already artificial hell has been made. The air burns with terrific heat actually melting the ground. If man can do it, why doubt God's power to do the same thing. Come hear about it and believe.'*"

The larger man—a middle aged fellow who might easily have been

mistaken for a successful banker—frowned. "Well, what of it?" he asked uninterestedly.

"What of it? Himmel, man! Don't you see? What are we paid for? Is it not to save for the fatherland those things which will make us the only nation in the world?"

Bock studied a moment, frowning reflectively. Suddenly he put down his beer mug. "We will go," he announced.

Half an hour later the two sat in the rear of the hall. Up on the platform Vincent Stephen, evangelist extraordinary, was reading from his Bible the words of Peter:

But the day of the Lord will come as a thief in the night; in which the heavens shall pass away with a great noise, and the elements shall melt with fervent heat, the earth also and the works that are therein shall be burned up.

The preacher closed the book and stepped forward.

"Now all of you are interested in this artificial hell I told you about," he began. "I will tell you briefly. It was first called to my attention last summer while I was preaching in Cloverdale. A very fine old gentleman, even if he is an atheist, told me of it. Then recently I chanced to go back there. Thinking I would call on this old gentleman, I made inquiry and found he stayed in a lonely old house in the very center of the wildest natural park I ever saw. Indeed, the people there seemed to think that something was queer about not only him but the owner of the property—Adam Arden—a man not much more than half as old as the old atheist, but who formerly had been considered of exceptional ability.

"Unfortunately, or fortunately, I lost my way in their jungle-park, and chanced to come out in a clearing at the rear of the house. It was dark, which accounts for why I got lost, and a light

*A catalyst is a substance which is seemingly inert and yet by mere presence dictates what actions shall take place in a chemical solution. The peculiar feature is that the catalyst itself is unchanged in the process and may be used over and over again. Elements and chemicals used as catalysts are platinum, manganese, acetanilide, sulphuric acid, etc.—Ed.

from a flashlight caught my eye. Then I recognized the voice of my old friend. His name, by the way, is Dr. Adolph Krantz.

"What are we going to do, Adam," he asked, "if this should continue to burn, and burn, and burn spontaneously, once it ignites the air out in the open?"

"One cubic inch cannot do very much harm, doctor," the other replied. "The uncombustible elements in the air should eventually dilute it until it loses its effectiveness."

"Ah, but those gasses will also diffuse, Adam," the old doctor argued. "What if it should reach the house and the many cubic feet we have flasked there?"

"I guess it would be the hell you refuse to believe in, doctor," the younger man laughed. "But go ahead; we've got to find out."

"Somehow they ignited the small bag of gas on the top of a post out there in the open. I was unintentionally an eavesdropper, fearing to disturb their experiment, and too interested to realize I had no business watching. Then came the explosion like a gun, and a roaring like a huge furnace, and such fire as I hope never again to feel.

"It burned the post, burned the ground about it, growing all the time bigger and fiercer. At first it was as large as a barrel, then it became almost as large as a room. The ground under it was actually melting. It blinded me and the heat forced me back into the bushes. Wind rushed past me straight towards the fire only to have the flames leap straight into the breeze. Then the

mass suddenly appeared hollow. The next moment it was gone, leaving only the melting earth about where the post stood.*

"By the time I regained my vision, both men had returned to their home. Since the bushes had torn my coat, I decided not to call on them. But I tell you, if man can burn the air on a small scale, how about God?"

The two visitors from Joe's place arose from their rear seats and passed out onto the street. When they were safely out of hearing from any chance passerby, the larger man chuckled audibly.

"It is colossal!" he beamed. "It was an inspiration, your seeing that statement, Arno. Dunnervetter! Think of it—one cubic inch of gas capable of melting earth! But it is so scientific, so possible. Strange that it never has been done before."

"And strange that the pigs do not realize its tremendous possibilities," asserted his companion. "Why, with such a powerful agent at our command, what could we do to Paris? To London? To New York?"

"Ya, with an airplane. Ignition bombs—ten to a pound—a thousand pounds to the plane. One man, too high to see. He makes a circle about the city, the fires make a wall none can get through, then inside they roast like pigs. One city like that and what country would dare refuse to listen? Ah, what an honor they will heap upon us then!"

"Ach!" breathed the other, "It is so! Our names will ring on the lips of all our countrymen!"

*This catalyst gas uniting with the air, caused a disruptive separation of the hydrogen and oxygen in the air, which ignited and burned furiously since both are an extremely inflammable and explosive element. Perhaps another way in which this gas might be ideal for practical use is in the propulsion of aircraft by means of rockets, if some

means could be found to control the terrific heat. As for nitrogen separation, Dr. Krantz and Adam Arden have discovered an amazingly valuable fact, since the combustion of the oxygen and hydrogen would leave practically pure nitrogen except for minute quantities of the rarer gases of an inert nature, argon, neon, etc.—Ed.

CHAPTER II

Dr. Krantz Gets a Note

ONE seldom finds two men as close friends as Adam Arden, sole owner of Arden House in the outskirts of Cloverdale, and Dr. Adolph Krantz, retired science professor from the state university. For nine years they had lived and worked together.

This association had come about when Adam Arden, right after the death of his wife, sent their two children, Dale and Juno, to be cared for by relatives, then had a new wing added to his already-large house, and in the new wing the finest laboratory money could perfect. While furnishing this laboratory he met the old doctor and an immediate friendship sprang up.

Because of the nature of their unified efforts Cloverdale saw little of either man until at the end of nine years whispers had it that both of them were mad. This tended to throw them that much closer and cemented rather than disrupted their friendship. Indeed, it was more like father and son, since Adam was now only past forty-five while the old doctor was nearing eighty although as well preserved as a man of fifty.

Some time after the New York preacher gave his dynamic lecture, Adam Arden and Dr. Adolph Krantz were working later than usual in the laboratory. Adam was working out the details for a damper gas with which to quench the terrific fire caused by exploding air; Dr. Krantz was poring over a scientific magazine. Out in the other part of the house the only servant, a Japanese, was entertaining a friend. The door bell rang. The Japanese opened the door and a man handed him a sealed envelope.

"It is to go to Dr. Adolph Krantz," the man said. "Give it to him in per-

son. You must make sure of that."

"Very truthfully, thank you; right away, thank you," and the servant, bowing, closed the door and locked it.

Adolph Krantz tore the letter open and glanced at it. Adam was pouring two fluids into a stopper vial.

"Mein Gott im Himmel!"

Adam looked up. "What's wrong, doctor?"

"Wrong? It is the devil let loose! Look! Read it."

As he said this, he shoved the sheet into Adam's hand. It was written in a cramped hand, evidently the work of some educated foreigner.

"*Herr Doktor Krantz*": began the note. "*When this letter you receive all telephone will be cut and all around house will secret army be paraded. Do not try to escape. We mean business. All preparations are made strong. Alive you soon shall not be if instructions followed are not. Eleven o'clock it is now; in half an hour will come deadline. The burning of this paper with match in front window is signal. Let one man in front door. He will talk English like I write. (Signed) Dies Irae.*"

Adams looked up into the troubled eyes of the doctor. "What do you make of it, doctor? He signs himself, Days of Wrath. What do you suppose the fool wants?"

"Fool? Ach, mein son; that is not the work of a fool. I do not know, but I have a fear someone has learned about our *nitroxy-catalysis* gas. What else could it be?"

"Bosh! What would anyone want with that, unless, perhaps, some fertilizer company to produce chemical nitrogen. It will be worth a million for that, but it isn't something such a company could steal like this and hope to get away with it."

"Fertilizer?" The doctor was still

too excited to keep his voice calm. "Oh, Mein Gott im Himmel! Do you forget so soon? Have I not pointed out to you ein million times that one cubic meter of it will utterly wipe out any city? Adam, mein goot friend, it is not for fertilizer it is wanted; it is for war!"

Adam frowned. "But who?" he questioned.

"Who?" cried the doctor. "Look at that script, Adam. It is European. Only the words are English."

"Yes," Adam admitted, "you are right. But I still can't see how anyone could have learned about it. Can you?"

For a moment the old man sat in deep study. His clear eyes seemed to be looking at nothing, and his sparse white hair was rumped. Suddenly he wilted. Pain swept across his face.

"What is it?" Adam asked, suddenly apprehensive.

"That preacher," the doctor said abruptly. "It must have been he. Once I was so excited in argument with him I tried to scare him by telling him we were working on a formula to create artificial hell. But he didn't scare. When next day I tried to see him to warn him not to reveal the secret which my rash words disclosed, he was gone already to New York to preach there."

Adam shook his head sadly. "A preacher of all people!" he exclaimed. "Doctor, doctor, when will you ever grow up? No, I shall not get angry with you; you are too good a friend. But just the same, it puts us in a tough spot. What are we going to do about this note?"

The doctor studied it a moment. Adam saw, however, that his eyes looked far beyond it. "I have caused this, if it is as we fear," he said with sudden decision, "now I alone must suffer, if suffer either of us must. If only we had more time."

Adam looked at his watch. "Only ten minutes left," he said.

"Which is little enough. I tell you; take the note and go to the front as it states. Remain there until the time arrives. Then when the man comes to the door, say you are owner of the house and try to keep him arguing."

"And you?"

"Me? I will stay here. Into some of those fiber bladders I shall place gas. In one day, or two, the acids in the gas will eat up the bladders and, puff! Where will their gas be?"

"It sounds good, if it will work."

"Work? Of course it will work. Now go; for I must do it."

CHAPTER III

A Tremendous Weapon

WHEN Adam left the laboratory, old Dr. Krantz closed and locked the door behind him. This done he prepared the bladders he had mentioned and replaced the great flask of *nitroxy-catalysis* gas from which he drew the smaller amounts. Hardly had he completed this task when steps came down the hall outside. He went to the door, unlocked it, then returned to his seat.

Adam opened the door and stood holding it. Through it walked a smallish man. Furtively the fellow's eyes darted from object to object about the room, finally fixing upon the doctor.

"He refused to talk to me, doctor," Adam explained, closing the door.

"That is right," the fellow spoke up. "I want only to speak with Dokter Adolph Krantz—the scientist."

The old doctor smiled. Ordinarily he would have corrected the man, but under the circumstances he chose to let him remain ignorant of the fact that Adam Arden was even more of a scientist than he, and the real discoverer of the powerful *nitroxy-catalysis* gas. But

his smile masked the real doctor inside.

"I am Dr. Adolph Krantz," he said, rising from his bench stool but not offering his hand. "Have a seat on the stool there, and we can talk. What do you want, and who are you?"

The fellow took the stool. His face cracked to the tiniest smile, more flaunt than friendliness.

"Who I am does not you concern," he said, caustically. "I am here to take with me a certain invention—a gas which causes air to burn spontaneously."

"Oh, you are," Adam spoke up. "And how do you propose to take it? Intend to buy it?"

The fellow's eyes narrowed. A curl snarled his lip. "In war one takes without buying," he replied.

"What do you mean—war?" Adam demanded.

"Did you not read the note? Around this place march a hundred men. Each is a soldier sworn to obey his captain. My country wants the gas you have perfected, and what we want, we take."

"And if we refuse?" Adam demanded.

"That would not be wise!" the fellow retorted.

"Ya, my boy; that would not be wise," the old doctor spoke up. "Now you must let me talk. I will deal with the gentleman."

Adam noticed the voice was exceptionally mild and conciliatory. He glanced sharply at the old man. The face was a benign mask now—a mask no one could read.

"Which country is your country?" the doctor asked.

"That, Herr Dokter, is my secret."

"And I suppose you want it to make commercial fertilizer—the use for which it was perfected, no?" the doctor went on, stealing a sly look at Adam as he mentioned fertilizer.

"Fertilizer!" the fellow laughed with contempt. "Yes, my good dokter, fertilizer of the armies who try to resist ours. But we waste time. I demand you give me at once the gas. If you do not, then I will give the sign and my men will close in on this house. That will not be pleasant. I have no more time for talk."

The doctor's voice came back, still calm and conciliatory. "Ah, but you must not get excited, my friend. Did I not tell you I will deal with you? Just how shall we give you this gas?"

"Have you not got it in a container?"

"Ah, yes; a container. Yes, it is in containers. But now for the terms. Do not get hasty, for one false move and we all may die. What good would your country get from that? For you know, my friend, my name is Krantz. Have you not heard of such a name before?" Now the doctor laughed a slight chuckle. "So perhaps you would not be so rash as to deny me also the right of helping out *OUR* fatherland, no?"

Adam was dumbfounded. What did the old doctor mean? He searched the masked face in vain. Aside from a strange glint in the eyes the face was as placid as oil. Now he had openly declared himself in sympathy with his fatherland which meant he was a traitor to his adopted country. But was he? Suddenly Adam knew better. The doctor must have some deeper scheme—too deep to see on the surface.

The fellow was more disturbed than had the doctor resisted. He frowned. "Then you will cause no trouble," he said finally.

"My friend, why should I cause trouble?" the doctor protested.

The fellow was blunt. "Because we looked you up; you are an American citizen. If your heart is right, then all will be well; if it is not right, then you will have no chance to be unfaithful:

we take no chances, see?"

Adam saw swift anger tint the doctor's face momentarily, but it was quickly controlled. When he spoke no trace of it was in his voice.

"Of course, of course! I would not have you take chances. Now I will show you the containers of gas. See, in this cupboard—those four bladders in the cupboard with the glass door."

The man moved over and opened the cupboard. With his left hand he reached in and brought the bladders out. Eyeing them cynically, he turned towards the doctor:

"How shall I know this is the right gas?" he demanded.

"Know? By testing it, my friend," offered the doctor. "See, this quartz oven," and he showed a cumbersome affair made of quartz plates reinforced with heavy metal. "Inside this oven is a simple spark plug. A small amount of the gas introduced through this petcock spigot when mingled with the air inside the oven will ignite instantly. Let me show you. Hand me one of the bladders."

The man passed one of the bladders to the doctor. He fitted the neck over the spigot, unclasped the bladderneck, then opened the petcock for just an instant. Again he clasped the neck carefully.

"Now I will ignite it with this spark," he went on, and pressed the electric button.

Inside the oven an explosion consumed every trace of air in it. Then he reached out and turned again the petcock.

"See," he explained, "through this window. The intruding air from the outside makes a jet of fire like a gas jet on a gas burner. Since the air inside is all consumed, only a hot vacuum is in there; so we have the outer air flowing in. For an hour or more that will

burn—will burn until the metal of the oven glows red with the heat from it. There, you have the proof."

Already the oven was glowing, but the doctor turned off the petcock and the fire winked out.

"It is enough," the man announced. "Now you must give me the formula. Then if the gas cannot be analyzed, the formula can be followed."

The doctor permitted a slight smile. "Ah, but the gas can be analyzed. Nevertheless I will gladly give you the formula. It is in this safe under the bench."

So saying he stooped and began turning the combination. Adam watched him. Now there could be no question of the doctor's intentions. The doctor opened the safe and took out a long treatise on a subject which had turned out negative—a formula as worthless as the formula for water, but far more intricate. He handed it to the fellow.

"It is very precious," he urged. "Guard it well."

CHAPTER IV

A Battle of Wits

AS the fellow tucked the document into an inner pocket, his face became suddenly hard. Now he deliberately reached into his right hand pocket. Seeing this the doctor leaned against the wall and tapped the light switch idly with one finger.

"Now both of you are to accompany me," the fellow announced brusquely. "Outside we have automobiles. Into—"

"Wait!" The doctor's voice was a bark. Now his face was no longer a mask, but rather a study in passion. "Your gun is not frightening me, mein friend. Let me talk. Kill me you might, but then we all die together. Are we fools to be unprepared for such

as you? Ha! ha! ha! Of course, we are not. This is as you think, a light switch. Ya, so it is disguised. But no one except us two ever come in here, and so it is safest to make it look like a light switch. Instead it is a safety device. Make one move with that gun and—"

The fellow's face turned as white as the doctor's hair. For one moment he showed uncertainty. Then bravado leaped into him.

"But you forget the army outside," he snarled.

"Ah, but I do not forget that," the doctor retorted. "But what good will an army do for a dead man, nein? Now let me talk. You may take me, ya, but not this my friend. He must remain here safe. If that is a promise, then I accompany you freely; if it is not, then I poke this button. What do you say?"

Adam was surprised at the sheer nerve of the doctor. He saw the fellow forced against his will to give in. His hand left the gun in his pocket. "All right," he said gruffly, although a crafty look showed in his eyes. "I will take only you, Herr Dokter."

At this admission, the doctor stepped over so he could swing the door open. The man moved over beside it. Adam still stood beside the workbench in the center of the room.

"Well, I will say goodbye, Adam," the doctor said a bit wistfully. "If never I see you again, all my belongings, which are few, you may have to do with as you wish. I am old—very old—and a long journey may mean the last of me, you know."

Adam was too full of emotion to answer. Better than the words he spoke he understood the old doctor. He choked out a hoarse goodbye, then the door closed behind his old friend—forever.

Old Doctor Krantz hesitated as the

laboratory door closed between him and Adam.

"Go ahead—move on!" ordered the man, "and say no word."

Slightly ahead of the other, he moved down the hall. At the coat rack he took his great coat, put it on, then went to the door. Opening it but making sure by a glance that the night lock was on, he moved out on the porch, his conductor right behind. When the other fellow failed to close the door he darted back and gave it a quick pull, closing it.

So swiftly did he do this that the door was closed before the fellow could protest. "You just forgot to close the door," the doctor said amiably. "Now which way do we go?"

"Down the driveway, away from the town. And keep two paces ahead of me."

As the doctor walked down the overgrown driveway he caught fleeting glimpses of dark forms peering at him. What the man had said about an army was true. He was taking no chances.

Just beyond the edge of the park the driveway opened out into a little-used country road. They had barely come in sight of two automobiles parked there when a man stepped out from the bushes and saluted.

"You will halt," the doctor's conductor said. Then reverting to a whisper he addressed the man who had saluted.

The heels of the other clicked. "I understand; your orders shall be obeyed," and he saluted.

"Advance," now came the command, and the doctor started on. But suddenly the weight of all his years seemed to press down. There was no doubt of the meaning of the whisper; he had ordered the complete destruction of everything left behind. And with the army hidden in the trees it would be a

simple matter. And once the house was fired, the tube of gas inside it would destroy not only the house, but the entire park if not the town itself.

They reached the edge of the park and then the road. Here the doctor saw that the two cars were standing, facing away from town, with the width of the dirt driveway marked by passing wheels between them. In this roadway three men waited. One of these, a huge, pompous fellow, stepped forward. He was smoking a huge cigar.

"You got only one, Bruno?"

"Ya, the other I could not bring without a fight."

"Then you did right. I see you got the real doctor. And I suppose you have the formula?"

"Yes, and the gas itself. It is in these toy balloons. See, I have four of them."

Bock reached out and took one of them. As he did so, he took his cigar out with his other hand, brushed the ashes from it, then returned it to his mouth.

"You are certain it is the right stuff?" he questioned.

"I saw it tested, Herr Bock."

Dr. Krantz saw the other two men step forward and each took one of the bladders of gas. But most of all he watched the glowing tip of Bock's cigar. It seemed to fascinate him. There they were, gloating over the most deadly possession any ruthless dictator could hope to acquire. They must not get away with it!

He stepped forward and took one of the bladders into his own hand so swiftly they didn't think to stop him. Then a cry of protest from the man Bruno. But it was too late. Already the doctor's fingers were closing down on the fragile bladder. One instant its sides seemed to hold. Angry, futile hands reached for his, clutching, des-

perate. His fingers tightened. The balloon burst with a sharp pop.

Adam heard his old friend pass down the hall with a stronger sense of loss at each step. Nothing since the death of his wonderful wife had so affected him as this. His whole world went dark. And if the old man should really be lost—

Suddenly a terrific explosion shook the place. White light flooded the entire park. In its glow frightened faces raced for cover, scurrying like mice from a freshly lighted grainery.

Instantly Adam knew what had happened. Racing back to the laboratory he picked up his half-filled flask and slamming the door behind him, he passed out the front door and down the lane.

Half way to where the roaring inferno glowed like an arc light large as a sky scraper he could go no farther. The heat was terrific in spite of the rushing wind that passed him going towards it.

"The wind!" he exclaimed aloud. "It might do it. I will try."

As he spoke he hurled the flask as far as he could down the driveway. It crashed into a thousand pieces and its contents splashed into spray.

Towards town the fire engine screamed closer. It was the first time he had heard it. Then something seemed to hit the fire. Twice it coughed, then snuffed out. His damper gas was a success.

When the fire truck roared up, he was already there, tears running down his blistered cheeks. On the glowing surface of the country road two puddles of still molten metal marked the places where two automobiles had stood. Between these puddles five heaps of human ashes lay—ashes as unrecognizable as any ashes ever turned out by a crematory.

THE END

Revolution



Risking discovery, he poured the contents of the strange bottles into the sink

of 1950

By
**STANLEY
G.
WEINBAUM**

Desperate danger faces Jack Adams every moment in the White House, as he strives to unearth the grim secret of a strangely ruthless president

CHAPTER I

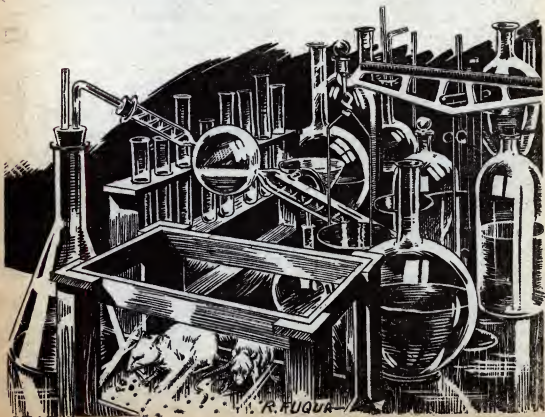
The Execution

STEEL JEFFERS 34th President of America, was not a large man. But no one thought of size, when confronted with his fiery eyes, his thin implacable lips, and his firm jaw.

At the moment, however, as he sat at his desk in the bay window of the Blue Room of the White House, he permitted himself to relax a little, and his

face lost some of its grimness. No one else was present except his athletic military aide, Lieutenant Jack Adams, in the trim black uniform of the Federal Guards; and the hawk-faced bearded Secretary of State, James Dougherty. Two soldiers were pacing up and down on the sunlit lawn outside.

President Jeffers passed a tired hand across his eyes, then looked up inquiringly at the scowling Dougherty. "Do you really think, Mr. Secretary, that I



should sign the death warrant of those two young men?" he asked, with a touch of sadness. "They thought they were influenced by patriotism. Isn't there some other way in which we can maintain our regime, without putting to death everyone who plots against us?"

Lieutenant Adams tensed. These men awaiting sentence had been closely associated with him—s e c r e t l y, of course. For Adams was an important cog in the conspiracy to rid the country of its undemocratic President. Was there nothing he could do to save his pals?

"Excellency," he ventured eagerly, "would not a little mercy—?"

"Nonsense!" s n a p p e d Secretary Dougherty, his red lips leering through his black beard. "Mercy, bah! What mercy would this rabble show to us, if they ever got the upper hand. Excellency, we must be firm."

The President sighed. "I suppose you are right; but, even so, I hate to do it."

A white-coated bullet-headed man, with thick-lensed glasses, appeared in the doorway of the Blue Room, and announced in guttural Teutonic tones, "Excellency, your medicine."

"Excuse me, gentlemen," said President Jeffers, rising with what Adams could almost swear was a trapped expression, and stepping out into the hall.

Adams had witnessed the rubbing-out of a number of patriots in the two years during which he had served as personal aide to this autocratic President. And to think that he himself had been one of the large number of young enthusiasts who only six years ago had helped elect Steel Jeffers to the presidency, as a reaction to the autocracy of President Hanson!

The rise of Steel Jeffers had been spectacular. Elected Governor of Iowa in 1940, in the same election at which

John R. Hanson was chosen to succeed Franklin D. Roosevelt, Jeffers was among the first to protest against Hanson's attempted increase in executive powers. Meanwhile his astute campaign manager, State Senator Dougherty, had been building political fences. In the election of 1944, Jeffers defeated Hanson on this issue of executive usurpation, and had carried into office scores of yesmen—Senators, Congressmen, Governors, and minor officials—all carefully hand-picked because of their subserviency.

Two years later, in the Congressional election of 1946, opposition candidates were intimidated or bought off, or else mysteriously disappeared. Vacancies in the Judiciary, as they occurred, were filled with willing tools. The pay of the Army was raised, its size increased, and the ranks gradually padded with high grade mercenaries. The G-men were disbanded; and the Intelligence Service of the Army expanded, to an extent unknown because they now went about dressed as civilians.

Yet, because of his espousal of popular causes and his ingratiating personality, Steel Jeffers had retained and increased his hold on the proletariat; for he had carefully studied his two predecessors, adopting their outstanding characteristics; the charming manner and pseudo-liberalism of Roosevelt, and the inflexible and ruthless egotism of Hanson.

After the 1948 election placed him in undisputed control of all three branches of the government, and he had arrogantly established the Roman salute and put the Army into black uniforms, there came the first rumblings against his dictatorlike power. But a few ruthless blood-purges, followed by his persuasive voice over the radio attacking the character and loyalty of the deceased, quickly drove the opposition to

cover.

Lieutenant Jack Adams, participating in some of these purges, had helplessly witnessed independent newspaper editors and statesmen lined up before machine-guns in the sound-proof basement of the State War and Navy Building. And so he could now vividly picture to himself the end of his two pals. *Their* death would be of the clear-eyed defiant variety. Well, if they had the courage thus to die for American freedom, he could have the courage to keep a stiff upper lip and let them die. The success of the conspiracy depended on his continuing in the good graces of President Jeffers.

Just then Jeffers strode back into the room, once more seating himself at his desk. A strange Jekyll-Hyde sort of personality, Jeffers! A few moments ago human, almost wavering; now firm and ruthless. Briskly he scrawled his flowing signature across the foot of the death warrant. Then he turned his cold purple eyes toward his aide. "Here, Adams, take this paper over to the War Department."

"Yes, sir," replied the Lieutenant, raising his right hand in a Roman salute. His fine features were expressionless, but he could not conceal the deep pain in his gray eyes.

"I know how you feel, Adams," said the President. "But you must be a good soldier—for the Cause."

As Adams left, with the warrant clenched in his fist, he muttered to himself, "Steel Jeffers little knows what a good soldier I'm being—for the Cause."

Returning to his house on P Street that evening, Adams changed from his trim black uniform into a loose gray Norfolk suit and hastened down into the cellar. The brick wall at one side was interlaced with many criss-cross cracks.

One irregular section now swung

open like a door. Adams felt a gust of cool musty air. A light shone dimly in the distance through the dark hole.

Presently there crawled out a stocky dark young man with a serious face. Adams shook his hand.

"Well, Godfrey, no one yet seems to have discovered that we know each other, even though we do live in adjoining houses. Have the rest of the crowd arrived?"

"Here's Liam and Sim." Two men, one tall and dark, the other short and roly-poly, crawled out through the hole.

"Had the devil of a time getting here!" the former announced. "Black-coated soldiers everywhere, damn them! No offense to you, Adams."

The short fat fellow chuckled. "Never mind the black-coats, Liam," he said. "It's the Secret Service we ought to worry about."

Several more men emerged from the hole in the wall.

Adams solemnly shook hands with everyone. "Tom and Bill are dead," he gravely announced. "Shot against a wall. I myself carried their death-warrant over. Jeffers would have let them off with mere imprisonment, if it hadn't been for that fiendish Secretary of State of his."

"Don't make excuses for Jeffers!" snapped Liam Lincoln, his dark eyes glittering with fanatic light. He brushed back a trailing lock of black hair. "Jeffers is a heartless usurper, though doubtless his experience in college theatricals when he was at Princeton enables him to put on an act. Sometimes, Adams, I begin to wonder if you—"

"Well, you needn't," the Lieutenant interrupted. "I risk my life daily for the Cause, while you boss things in comparative safety."

"For cripes sake!" cut in roly-poly Simeon Baldwin. "If we can't trust

each other, fellows, who can we trust?"

"You're right, Sim. I'm sorry, Jack," Lincoln graciously apologized. "Well, to business. Very gratifying secret reports are coming in all from all over the country. Our organization is growing by leaps and bounds. The Governors of nearly half the states are either active members, or at least in sympathy. Patriotic leading citizens everywhere are waiting for the word from our little Washington group that the time has come for action. Meanwhile Sim here has completed his study of Jeffers' early life."

"I'll skip what you already know," said Baldwin. "What I've lately been working on is his sister."

"You mean the one who died on the day of Jeffers' first election?" Adams asked.

"Did she?—I wonder," Baldwin replied enigmatically.

"Did she what?"

"Did she *really* die? That's the angle I've been working on for the past few weeks. If she *did* die, old Svengali Dougherty killed her, and Steel Jeffers wouldn't have stood for that. So I believe she is hidden away somewhere to prevent her from influencing her brother."

"But why should Dougherty fear *her* influence?" asked one of the others. "The three of them were hand-in-glove."

Liam Lincoln laughed harshly, and tossed back his long locks of black hair. "That was back in the days when even *we* were following Jeffers toward 'the better economic day' for America."

"You're right, Liam," Adams chimed in. "The change in the President seems to date from the death—or disappearance—of his sister. You're on the track of something, Sim. Go on."

Baldwin continued, "There's something fishy about the death of Helen

Jeffers. The girl was in charge of her brother's campaign headquarters and apparently perfectly well, right up to election-day. The coroner who signed her death-certificate hasn't been seen since. Her brother was reported prostrated by her death—went into seclusion immediately in a mountain camp—yet no doctor went with him."

"But weren't Southworth and Vierecke there?" Adams interrupted.

Baldwin replied, "Southworth—now Rear Admiral and White House physician—didn't arrive at the mountain lodge until two weeks after election. Doctor Vierecke didn't land from Austria until a week after that."

"But if Jeffers wasn't ill, why doctors at all?" asked Lincoln, pushing back his black forelock. "He seemed weak and shaken when he came back from the mountains, just before inauguration."

"That's the next point which I wish investigated," Baldwin asserted. "Just what is the why of Admiral Southworth and his Austrian assistant? Jack, can't you get a line on them? You work in the White House."

"I know something about them already," Adams diffidently replied. "Southworth did research work in hormones, before he went into the Navy. That's how he happened to know Vierecke, for hormones was Vierecke's specialty at Goettingen."

"Not much to go on," said Lincoln. "Do some spying, Jack. I understand that the two of them have a fully equipped chemical and biological laboratory in the basement of the White House. Why should there be such an establishment there? We must investigate everything the least bit screwy about the President, in the hope of some day finding his weak spot. Well, go on, Sim."

Baldwin thrust his hand into a brief-

case as fat as himself, and pulled out a photograph. The others clustered around. From the picture, there looked up at them the frank sweet face of a young girl. "Helen Jeffers," he announced, "just before her death—or disappearance. You'd know she was a Jeffers, wouldn't you?"

But Adams could see no resemblance to her brother. Soft wavy dark hair. Frank open eyes. Perfect features. Full alluring lips. Softly curved neck and shoulders.

Strange that such a thoroughly feminine girl had formed a compatible member of that triumvirate—with Steel Jeffers, the popular and magnetic front; and Dougherty, the practical wire-pulling organizer—which had pushed Steel Jeffers up to the position of supreme power in America!

"Some baby!" murmured several of the conspirators, appraisingly.

But a stronger feeling touched Lieutenant Adams. Of course, he had seen newspaper cuts of her at the time of her brother's first campaign, but this was different. He squared his shoulders with determination. His gray eyes narrowed, and a whimsical smile played on his lips.

"Gentlemen," he announced, with mock solemnity, "I am going to find Helen Jeffers for you." In his mind he added: "and for myself."

CHAPTER II

The Mystery of the Laboratory

THE next morning, a bright sunlit June day, Lieutenant Adams swung through the streets with a determined stride, on his way to his post at the White House. Mechanically he returned the Roman salutes of the black-uniformed military men whom he passed. Civilians were few on the streets of Washington these days.

Washington had become a vast military establishment.

Entering the executive mansion, he passed the shrewd-faced, bushy-eyed old sea doctor, Admiral Southworth, going out. Adams reported to one of the Assistant Secretaries, and was informed that Steel Jeffers was not up yet. Fine! This would give him time on his own, to investigate the mysterious laboratory.

As he approached the always-locked doors in the cellar, they opened. Ducking quickly behind a pillar, he saw the bullet-headed Dr. Vierecke emerge, hat on head and without his white smock; then turn, key in hand, and lock the doors. Glancing furtively around, the doctor shoved the key into the dirt of a potted plant standing nearby, then hurried off down the corridor. Adams slipped out from behind the pillar, and followed until Vierecke left the building. Then he hastened to the office wing, and asked the appointment clerk, "Where are Admiral Southworth and Dr. Vierecke?"

The girl consulted a memorandum book and replied, "They've both gone to a conference over at the Public Health Service. Won't be back until after lunch."

Grinning to himself, Adams strode back, extricated the key from the dirt of the plant pot, unlocked the laboratory, and entered, locking the door behind him.

His gray eyes were alight with anticipation. What an opportunity! The only two men who ever entered the laboratory would be safely out of the way for the rest of the morning. And if the President wished Adams, the autocall bells throughout the White House would ring his number, and he could come running.

Most conspicuous in the room were two long work-benches, with sinks,

bunsen burners, retorts, glass and rubber piping, and test tubes.

A squeaking noise in one end of the laboratory attracted his attention to dozens of caged guinea-pigs. Adams strode over to the cages. On each cage was posted a geneological chart, on which each individual was identified by various numbers and symbols, including (many times repeated) ♂ and ♀. Adams scratched his blond head, grinned, and then copied several of the charts into a little pocket notebook as samples—he could return and copy more if these few should hold any significance for the biologist among the conspirators.

He looked in the ice-chest, but found nothing there except some small unlabeled bottles.

Next he inspected a cabinet of surgical tools. The large number of hypodermic needles impressed him. His mind flashed back to the change which had come over Steel Jeffers when, wavering on the question of executing the young traitors, he had been called out of the Blue Room by Herr Doktor Vier-ecke, and had returned, filled with merciless determination. Could the secret of the power of the sinister cabal lie in drugs?

Adams shuddered. The brother of Helen Jeffers a drug-addict? Incredible!

Nevertheless the possibility must be investigated. So, with sinking heart, Adams turned to a bank of open shelves, stacked with labeled bottles.

To his relief, he found no morphine, opium, heroin, cocaine, or any other substance the name of which he recognized as being that of a narcotic. He copied down the names of several chemicals which he did *not* recognize. These *might* be narcotics.

Then his attention was directed to several large drums, labeled "Choles-

terol." *

He was just jotting down the word, together with the name and address of the supply company, when a bell in the corridor outside clicked his autocall! The President wanted him.

Hurrying to the door, he was about to unlock it, when he heard voices outside. Putting his ear to the crack, he listened. In crisp tones, the old Admiral was saying, "You fat-headed fool! Why didn't you hide the key where I told you to?"

"Ve haf *two* keys."

"I left mine in my other suit. It is at the cleaners."

"Unt I did put der key in der pot."

"Ding! Ding-ding-ding!" insistently rang the autocall. If Adams didn't hurry, embarrassing inquiries would be made.

"Now listen, you fat-head," said the sharp incisive voice of the old sea-dog. "Go to the head housekeeper, and tell her to find out pronto who's been messing around that flowerpot. I'll send someone over to the tailors for *my* key. Report to me in the executive offices. Now vamoosel!"

Footsteps of both men could be heard moving off down the corridor. Adams unlocked the door, and peered out. No one in sight; so he hastily emerged, locked the door, thrust the key in his pocket, and dog-trotted to the Blue Room.

Stopping just outside the room, he smoothed down his black uniform, and entered unconcernedly. Stepping up to the desk in the bay window, he raised his arm in a brisk Roman salute. Steel Jeffers looked up.

"Oh, yes," Jeffers absently an-

* Cholesterol is a white, fatty, crystalline alcohol, $C_{27}H_{46}\cdot OH + H_2O$, tasteless and odorless, found in numerous animal products and tissues such as bile, gallstones, egg yolk, and especially nerve tissue. By extension, any of several similar substances, some of which are found in plants.—Ed.

nounced. "Here are some papers to be taken over to the War Department."

Adams' set jaw relaxed, and he drew a deep breath of relief. Taking the papers, he raised his arm again in salute, faced about, and strode from the room.

In the big hall outside, he ran across Admiral Southworth. The bushybrowed old sea-doctor was visibly agitated. "Oh! Ah! Lieutenant, you going anywhere particular?"

"War Department, sir," Adams briskly replied; and he couldn't resist adding, "But I thought that the Admiral was at a conference."

Southworth bent narrow eyes of scrutiny at him. "Meeting called off. Not that it's any business of yours, you young whelp."

"Can I do anything for the Admiral?" Adams asked innocently.

"Why, ah, yes. Step over to that tailor shop on 17th between G and F, and get a key for me. I left it in a suit. It's—it's the key to my locker at the Army and Navy Club, and I'm going to need it this noon."

"Yes, sir," said Adams, with expressionless face.

He took the President's papers to the War Department, and then retrieved the Admiral's laboratory key. On his way back to the White House, he racked his brains for some excuse *not* to deliver this key; but finally he reflected that, if he kept *both* keys, this would merely result in Southworth having a new lock fitted. So he handed Admiral Southworth his key.

The rest of the morning he had to attend the President; but, after that, he hurried to the stenographic office of the White House.

Seating himself at one of the desks he penned a brief note, reading: "P.N. Investigate White House purchases of cholesterol. J.Q.A." Then, clapping his black military cap onto his head, he

strode out of the White House, and down the left-hand driveway to the corner of West Executive and Pennsylvania Avenues, where he stopped to buy a bag of peanuts from the old Italian who kept a stand there.

"Giuseppe," said Adams, as his eye happened to light on the man's tin license plate, "the Federal Peanut Commission wouldn't let you stay in business, if they knew what your business really was."

"I do not understand, Signore," solemnly replied the Italian, stroking his long gray mustaches; but there was a twinkle in his beady black eyes as he said it. "My business is to sella da peanut, no?"

"No!" Adams replied, laughing. "Well, here you are." He handed over a dollar bill, folded to conceal the note which he had written.

"Grazzia, Signore," said Giuseppe, with a bow.

Then Adams ambled back to the White House, ruminatively cracking peanuts and eating them, and wondering what Philip Nordstrom, a conspirator who held a small clerkship in the office of the Comptroller General, would be able to learn on the subject of cholesterol.

Adams was famous in White House circles for the large quantities of peanuts which he consumed; but he was fortunately *not* famous for the large number of notes which he left with, and received from, the grizzled old peanut-vendor.

CHAPTER III

Another Meeting, and Complications

THAT evening when the little band of patriots gathered again in Adams' cellar, Nordstrom, a tall blond youth with pale blue eyes, was ready to report.

"I got your note from Giuseppe,

Jack," he said, "but why your sudden interest in cholesterol?"

"Why Steel Jeffers' sudden interest in it?" Adams grimly countered.

"His interest *isn't* sudden," Nordstrom replied. "The White House has been buying cholesterol in quantities ever since Jeffers first became President six years ago."

Liam Lincoln ran one slim hand through his long black hair. "Cabot," he said, addressing that solemn-faced individual, "you're a chemist of sorts. What possible use can Steel Jeffers have for so much what-you-call-it?"

Roly-poly Simeon Baldwin eagerly cut in, "I believe we are getting somewhere!" His fat face was alight with interest. "Maybe this cholesterol, or whatever, will furnish us the clue we're after."

"Well," said Cabot judicially, "let's first hear from Jack how he got a line on this."

Adams then related how he had explored the laboratory.

"Did you find any small bottles capped with a rubber diaphragm?" Cabot asked.

"Why—er—no," the Lieutenant replied. "Ought I have?"

"Well rather! All those hypodermic needles! Lots of guinea pigs, to experiment on! President getting pepped up by Dr. Vierecke every time Secretary Dougherty wants him to do something particularly diabolical!"

"Come to think of it," Adams replied, "there *were* some small bottles in the ice-chest. But I didn't notice them particularly—they weren't labeled."

"Can you get in there again?"

"Yes."

"Then bring me one of those bottles."

The next day at the first opportunity Adams headed for the laboratory. Admiral Southworth and his Prussian as-

sistant were talking together just outside the door as he drew near. Their heads were close, and their manner seemed furtive.

"Now while I am in the Adirondacks," the old sea doctor was saying in an undertone, "are you sure that you have on hand enough?"

"Sh!" admonished the bullet-headed Vierecke, catching sight of Adams. "Yes, *ve* haf plenty." He nodded vigorously.

Southworth smiled a wind-swept smile, and held out his hand. "Well, goodbye, Franz. Take good care of everything."

"What!" Adams exclaimed, stepping up. "You going away, Admiral?"

"Just for a couple of week's fishing," Southworth replied.

"But look here, Sir," Adams persisted, with the sudden hope of getting a line on Southworth's White House activities, "you are responsible for the President's health. What if he should get sick while you're away?"

The Admiral knotted his bushy eyebrows. "I shall be in telephonic touch with the White House at all times," he said. "There will be an amphibian plane on the lake, always in readiness."

"Good!" said Adams, but not with much enthusiasm. Vierecke scowled from behind thick-lensed glasses. Southworth cast a sharp beetle-browed glance. Then the two of them moved off together down the corridor, resuming their whispered conversation.

As soon as they had turned the corner, Adams took the key from his pocket and let himself into the laboratory.

In the ice chest he found a half dozen small bottles capped with rubber diaphragms, as described by Godfrey Cabot. But only one of them had a label—a strip of adhesive tape, bearing a blurred word, of which only the first four letters remained legible: "Test

———.” This bottle, Adams slipped into his pocket.

Suddenly he had an idea. If he could cut off the supply of this drug even temporarily, he might get a line on its effect on Steel Jeffers. So, piercing every diaphragm with his pocket knife, he poured the contents down the sink, and threw all the emptied bottles into the incinerator chute.

The corridor was empty when he emerged. On a sudden impulse, he shoved the key back into the plant-pot in which he had originally found it. Then, as the President didn't need his immediate presence, he ambled out to the street corner and bought some peanuts. Returning some time later, he reported to the Blue Room.

What a scene of confusion he found there! The hook-nosed black-bearded Secretary of State, pacing up and down, his face a thundercloud of wrath! Franz Vierecke, clad in his stiff white laboratory smock, standing helplessly by, with a lost look on his pudgy fish-eyed face. President Jeffers seated at his desk, an expression of mingled concern and amusement on his finely chiseled features.

“Can't I do something?” Adams respectfully inquired, stepping up.

“Yes,” snapped the sinister Secretary. “Get Admiral Southworth back here at once.”

“Oh!” said Adams, with well feigned surprise. Then wheeling around on Vierecke, “How long has the Admiral been gone?”

“About an hour.”

“Where was he flying from?”

“Der Potomac Field.”

“By your leave, sir.” Stepping briskly over to the desk, Adams picked up the phone. “Naval Base—Emergency.”

He got his number, ascertained that the plane had been gone for nearly an

hour, and commanded that it be immediately recalled by radio.

A pause, during which he held the line. Then, rigidly suppressing any indication of the joy which the news gave him, he turned and reported, “They say that the plane doesn't answer. That its radio must be out of order.”

“Ausser ordnung! Ach, mein Gott!” wailed Vierecke.

“And now,” said Adams briskly to the pacing Dougherty, “hadn't you better tell me what this is all about?”

“Fresh young puppy!” spat the Secretary through his big black beard.

“Well, *you* don't seem to be being very helpful yourself, Jim,” asserted President Jeffers with some asperity. Then, turning to his aide, “Lieutenant Adams, someone has gained access to Admiral Southworth's private laboratory, and has stolen some small bottles containing chemicals of great value to the peace of America. The exact nature of those chemicals is known only to Southworth, Vierecke, Dougherty, and myself.”

“I can serve you without knowing, Excellency,” asserted Adams. “Am I in charge?”

Secretary Dougherty ceased his pacing, and glared at the young officer. “Certainly not!” he hissed.

“I happen to be the President, Jim,” Steel Jeffers interrupted incisively. “Yes, Adams, *you* are in charge.”

“Good!” cried the Lieutenant. “Excellency, will you please phone the airport, and order them to continue trying to contact the plane. Herr Doktor, come with me.”

“But—but—,” spluttered Dougherty. “Am I, or am I not, the Secretary of State?”

And, as Lieutenant Adams pushed the white-coated Vierecke from the room, he heard Steel Jeffers wearily yet firmly assert, “Yes, Jim, you are still

the Secretary of State. But it is I who am the President."

First Adams rushed to the Executive Offices, where he summoned the entire corps of White House guards, and gave orders that no one was to leave or enter the building. Then he led the bewildered Vierecke down to the basement, and made him unlock the laboratory, and hand over a sample empty bottle.

Next Adams called the War Department for a detachment of officers from the Intelligence Service, showed them the sample bottle, and turned them loose to find the stolen ones. Then he returned to the Blue Room, to report to President Jeffers, his keen gray eyes sparkling with enjoyment of the success of his make-believe.

He was wholly unprepared for the chilling reception which was awaiting him. Steel Jeffers and his sinister pal were seated together. As Adams stepped up to the desk and gave the customary Roman salute, both men looked up, transfixing him with narrowed eyes.

Then Dougherty smiled an evil twisted smile. His rat eyes glittered. "Where had *you* been, Lieutenant," he demanded, "just before you burst in on us and took charge of this case?"

CHAPTER IV

Chaos

FROM the doorway behind Adams came a smooth cold voice, "I can answer that question, Mr. Secretary."

Adams wheeled, and saw the clean-cut inscrutable features of Captain Silva of the Intelligence Service.

Chilling as was the sight of this notorious ace of inquisitors, yet it came as a welcome diversion. For Dougherty would have had some admission out of Adams in another moment.

Silva continued, "Lieutenant Adams was buying peanuts at the corner in

front of the White House."

Secretary Dougherty growled, and Steel Jeffers laughed a brief cold laugh.

Captain Silva, twirling one of his pointed black mustaches, went on, "Naturally my first step when assigned to this investigation was to check up on Mr. Adams." Then, as Adams bristled, "No offense, Lieutenant. One should always suspect the man who calls the police. The doorman saw you distinctly. You walked briskly to old Giuseppe's stand, bought a bag of peanuts without even stopping to chat with the Italian, as I am informed you usually do; and then returned, munching your purchase. You met no one either coming or going."

Adams, smiling confidently now, reached inside his blouse toward his left shoulder.

"Stop him!" shrieked the Secretary.

Captain Silva leaped forward. But, before he could reach Adams, the latter had brought out a half-empty paper bag, and held it toward the Secretary. "Have a peanut, Mr. Dougherty," he invited.

"Bah!" spat the Secretary, knocking ing the bag aside with one claw-like hand. "Peanuts! Bah!"

Steel Jeffers sniffed contemptuously. "What did you expect? A gun? He'd have reached for his *hip*, not his *shoulder*, if he'd wanted to pot you. He's an Army officer, not a gangster. Cut out the jitters, Jim, or you'll have me jittery too."

"Can you joke, Mr. President, when the fate of the nation is at stake? Sometimes—I wonder—" He caught himself. Then suddenly his evil eyes narrowed, as he wheeled around to Captain Silva, and pointed at Adams. "Search him!" he commanded.

As Adams held his arms above his head, he grinned with thankful recollection of having put the laboratory

key back into the plant-pot where he had found it. The search over, he asked, ignoring the discomfited Secretary, "And now, Excellency, am I still in charge of the investigation?"

Receiving the President's nod, he swept from the room, followed by Captain Silva.

Newboys were crying an extra on the Avenue. Adams sent one of the White House guards to buy a paper. The headlines read: "ADMIRAL SOUTHWORTH CRASHES." Adams hurriedly perused the item. It related that, on nosing down for a landing at the Adirondack lake where the Admiral had his lodge, his plane had grazed a tree. The Admiral had suffered a severe head injury and was unconscious, but was expected to live.

Adam's gray eyes flashed. It was too bad that something had to happen to the fine old sea-dog; but Southworth's incapacity would be worth while, if it should disclose just what part he had been playing in the life of the President!

Newspaper in hand, and with a synthetic expression of concern on his face, Adams rushed to the Blue Room. As he entered, Steel Jeffers was saying, "—which means a good long rest for me, Jim."

"Unless that scamp Adams succeeds in finding the missing test—" added Secretary Dougherty, breaking off abruptly, as he saw the Lieutenant. "Oh, it's you? We know the news, and are already in touch with Southworth's lodge."

Lieutenant Adams carefully failed to find the missing bottles. He felt a bit guilty when, later in the day, Jeffers complained of a slight attack of dizziness, and retired to his bedroom. For, in spite of Adams' unquestioned loyalty to the revolutionary cause, he had developed a real affection and admira-

tion for the chief whom he was supposed to be serving. Adams could not help believing that, if the evil influence of Secretary of State Dougherty were removed, the President would revert to the idealistic program of economic and social reform originally mapped out for him by his now-missing sister.

But, whatever good the purloined bottle of "Test—" might have done to the President, it gave very little information to the members of the conspiracy. No methods of organic chemistry of which even the expert Godfrey Cabot was capable, produced any analysis other than simple cholesterol dissolved in alcohol. The stocky young chemist was a biologist as well, and positively asserted that cholesterol could not have any bearing on Jeffers' condition.

"I looked it up in the pharmacopoeia and in the dispensatory," he stated. "No mention of it at all in the former. Latter merely says it is constituent of cod liver oil. Can be isolated by first saponifying the oil, and then exhausting the resulting soap with ether. Cholesterol in cod liver oil runs about 0.46 to 1.32 per cent."

Simeon Baldwin's chubby face beamed with a sudden idea. "Cod liver oil!" he exclaimed. "The very thing! I'll bet that Southworth and Vierecke have discovered what causes cod liver oil to pep people up!"

"I doubt it," Cabot thoughtfully replied, shaking his massive head. "I injected some into some guinea-pigs over at Public Health Service. Didn't pep 'em up a bit."

Baldwin's face fell.

Liam Lincoln shook back his black forelock, and inquired, "Did the label give you any clue, Godfrey?"

Cabot pursed up his lips. "Nothing in either book, beginning with 'T-E-S-T'," he said, "except, of course, the whole range of test solu-

tions."

"What are those?"

"Solutions of reagents."

"And what are reagents?"

"Things used in tests."

"Well, couldn't the 'T-E-S-T' stand for that?"

"No," judicially, "don't think so. Cholesterol not a reagent. Test solutions usually 'kept in glass-stoppered bottles, not diaphragm-covered ones. Official abbreviation for 'test solution' is 'T.S.', not 'T-E-S-T.' No. Sim's hunch best; but the guinea-pigs don't react."

The conspirators seemed no closer to the solution of the mystery. Nevertheless, the destruction of Dr. Vierecke's supply of little bottles, and the enforced absence of Admiral Southworth, had certainly in some unexplainable way contributed to the illness of Steel Jeffers! He remained shut up in his room, and refused to see anyone except Vierecke and Dougherty. Not even his aide, Jack Adams, or any of the servants.

Adams marveled at the speed with which, all over the country, unrest came to the surface, the moment that the iron grip of Steel Jeffers was relaxed. The Liberty League and the Civil Liberties Union staged demonstrations, of course expressing complete loyalty to President Jeffers, but disapproval of the way the country was being run during his temporary incapacity; and the dread Secret Service did not pounce upon them. "Freedom of the press" appeared again. Several Governors raised their voices in opposition to Federal encroachment.

A whispering campaign of rumors, as to the state of the President's health and even of his mind, swept from coast to coast. One yarn had it that Jeffers had become hopelessly insane, and that the executive orders which were being

issued over his signature were forgeries perpetrated by the much-hated Secretary of State, with the collusion of "that foreigner," Franz Vierecke.

Senator Bridges of New Hampshire had the temerity to introduce a resolution declaring the Presidency vacant and calling upon Vice President Niem to assume control.

Meanwhile Godfrey Cabot's guinea-pigs continued unaffected by the sample of the mysterious chemical which Adams had stolen from the White House laboratory. The conspirators, although still at a loss to explain the President's illness, nevertheless started a rumor, which spread and obtained credence, to the effect that Steel Jeffers was afflicted with some obscure malady, with which only one physician in the whole world, the stricken Southworth, was capable of coping.

Admiral Southworth had finally come out of his coma, but was too weak to be moved. His assistant made a rush trip to his mountain cabin, and came back very much depressed. Rumor had it that Vierecke had gone in search of certain information, but that the Admiral had refused to talk.

At one of the secret evening meetings in the cellar of Adams' house on P Street, he and Liam Lincoln disagreed over tactics. The latter had reached the conclusion that now was the time for their movement to come out into the open and throw its forces into the scales against the national administration. Many prominent public officials throughout America, who were in touch with this Washington group, eagerly awaited Liam Lincoln's assurance that the time for rebellion had arrived.

But Adams advised further delay. "Wait until we absolutely know just how dependent Steel Jeffers is on Admiral Southworth. Their simultaneous

illnesses *may* be a mere coincidence."

"Adams, I doubt your loyalty!" the fanatic Lincoln declared.

Adams leaped at him. Their pals separated them. The two apologized. But the row rankled; and it rankled especially in Liam Lincoln, for the group endorsed Adams' fabian policy.

Leaving the White House the next evening, Adams happened to pass through the servants' entrance. His foot was on the bottom step, when the door opened behind him. He turned at the sound, and the light from within momentarily illumined a feminine figure, shrouded in a hooded cape. Dainty silver slippers and the edge of a blue evening gown protruded below the bottom of the cape, but it was the brief glimpse of the girl's face which arrested Adams' attention. Tendrils of dark hair twined beneath the edges of her hood. Her resemblance to the President was striking; but, where Steele's face was firm and masculine, hers was delicately rounded and feminine and alluring.

"Helen Jeffers!" Adams declared to himself, as she passed him and dodged into the shadows.

With sudden determination, he followed her.

CHAPTER V

An Amazing Masquerade

THE mysterious girl from the White House hurried furtively through the trees toward the Parkway, then along its winding stretches to the Hotel Washington. Never for an instant did Lieutenant Adams let her out of his sight. He entered the hotel only a few steps behind her.

As she paused and gazed around the lobby, Adams got a better view of her

face. Unquestionably it was the face of the photograph from Sim Baldwin's dossier. But where the photograph had showed a mere pretty girl, this face had the maturity and charm of a ravishingly beautiful woman—exactly the change that the six years since her supposed death could be expected to bring.

Jack Adams's heart missed several beats, and then raced madly. The girl turned full toward him. He flushed, looked away, and stepped backward, stumbling over the end of a stone bench in the lobby.

"Oh, I'm so sorry!" she explained in delicious tones. "Did I bump into you, or something?"

"Er—no", Adams hastily replied. "I guess it's just that I can't stand so much sheer beauty, that's all."

"Oh," stiffening a bit. "Do I know you or something?"

"I guess it must have been two other fellows," laughed Adams. And the girl laughed too.

Adams squared his broad shoulders. Here was opportunity—for the Cause, of course. He must not misplay. The twinkle in his gray eyes, and the whimsical twist of his handsome mouth, belied his fixed determination.

"After all, I *do* believe that we've met," he began.

"You're making me very conspicuous," she objected, yet she did not move away.

"I'm so sorry!" he explained. "Let's sit down over here." He led her to a chair in a far corner of the lobby. As she seated herself, and glanced inquiringly up at him, Adams added, "And now that we are so well acquainted, perhaps you will tell me your name."

He sat down beside her, and leaned across, intently studying her perfect features. She smiled back at him—provocatively. She let her cloak fall back from her shoulders, disclosing a summer

evening gown of flowered blue chiffon, gently clinging, revealing.

"No," she replied, but with the light of mischief in her violet eyes. "I'm a stranger here—a school-teacher on a holiday. I don't pick up men—usually. I think I'm going to like you, but let's not spoil this charming interlude by knowing too much about each other. Just call me 'you'."

"Hey, you!" said Adams laughing, though his pulses were pounding madly because of her nearness. "Are you staying at this hotel, you?"

"You sound like a detective from the Army Intelligence Service, or something, though your cross guns indicate Coast Artillery. Perhaps you are one of the secret agents of the President?"

"Heaven forbid!" he exclaimed.

She was watching him intently. "So you don't approve of Steel Jeffers?" she asked, innocently.

Did she know his identity? The President's sister ought to know by sight the President's aide. But was she Helen Jeffers? In fact, was Helen Jeffers even still alive?

Then suddenly a thought occurred to him. Might not her presence in Washington, rather than the theft of the missing bottles, be the cause of the slackening of Jeffers' ruthlessness? Down tumbled all the preconceived notions of the conspiracy. For a moment Adams felt depressed, then brightened again at the thought that maybe—this *new* explanation could be turned to some use.

"A penny for your thoughts," said the girl. "When I asked you just now whether you approve of Steel Jeffers, you went into a blind daze. Yet that is a question which any loyal American ought to be able to answer offhand—without study."

"Yes," Adams replied, his eyes gazing intently into hers. "I am a deep

admirer of the President. And I am a sincere believer in the policies which elected him." This line ought to go good with the girl who had outlined those policies, if indeed this were she. "But I believe that he is unfortunate in the choice of some of his advisers."

"I'm glad you like my — er — Steel Jeffers," the girl exclaimed. "But I am surprised that you do not approve of Secretary Dougherty."

"I mentioned no names," Adams hastily interposed.

"No?" She laughed her tingling silvery laugh.

"Let's not talk politics," begged the young Lieutenant. "Have you eaten?"

"Yes."

"Then how about a movie?"

She nodded and smiled.

At the theater, the newsreel dealt very guardedly with the President's illness, exhibiting "canned" flashes of Jeffers himself; of the sinister Dougherty; and of the flea-bitten old sea doctor, whom it reported as rapidly convalescing.

The audience greeted the picture of Jeffers with applause, at which the girl seemed to thrill. Dougherty drew hisses and same boos, at which the girl stiffened. Southworth evoked merely a rustling interest.

After the show Adams took the girl to the Washington Roof. Several of the diners turned and stared at the distinguished-looking blond young man in black uniform and his stunning dark-haired partner in blue.

The head-waiter greeted him effusively by name. Adams tried to silence the man by a glance, but the man kept on bowing and scraping and calling him "Lieutenant Adams."

"Oh, so you're the President's aide!" the girl announced, as the waiter seated her. "How banal of me to have asked what you thought of him! And how

dangerous of *you* to have revealed your disapproval of Secretary Dougherty. How do you know that I am not a Secret Service agent, or something?"

"I'd trust *you* anywhere," breathed Adams.

"So?"

"Yes! And look here Helen, why can't we—?"

"'Helen'? Why do you call me 'Helen'?"

Adams bit his lip. The name had come so naturally! His face took on a hunted look. "Helen of Troy, 'the face that launched a thousand ships', you know."

Her purple eyes narrowed and her face became grave, as, ignoring the compliment, she snapped, "That's not the truth, Adams. Why did you call me 'Helen'?"

Cornered he stammered, "I saw a picture once of the President's sister. Her name was Helen. You look so like her that I've been thinking of her all evening."

"Well, of all the complimentary men!" she commented sarcastically.

But he was not to be laughed off. "You *are* Helen Jeffers," he insisted.

She sobered suddenly. "Helen died six years ago. She was my sister."

Adams gasped. "I didn't know there were *two* girls in the Jeffers family."

"There weren't. *Helen was the only one.*"

"But you said—"

"I said Helen was my sister. So she was." Suddenly her voice became deep and guttural and male. "I am *Steel* Jeffers."

She paused to let that information sink in, as Adams stared in horrified silence. Then the disguised President continued, in feminine tones again, "I played girl parts in Triangle Club shows at Princeton, and have not forgotten the art of make-up and imper-

sonation. And so, in these hectic times, I disguise myself and go out among my subjects, like Haroun Al Raschid, to learn first-hand what they think of me. The results have been gratifying. And particularly gratifying, permit me to say, has been your own expression of loyalty to me—and to the principles which made me President."

Adams continued to stare. Finally he found his voice, and gasped out, "But, Excellency, you were reported too ill to leave your room. How is it safe for you to be out alone and unguarded like this?"

"I am neither alone nor unguarded, thanks to you. As to whether I am safe—Secretary Dougherty does not know that I am out," the disguised President enigmatically replied.

CHAPTER VI

Back to Normalcy

"**A**ND now that you know who I really am," Jeffers continued in his feminine falsetto, "my Arabian Nights masquerade is at an end. Let us return to the White House."

Just then the waiter bustled up. Adams handed the man a dollar bill, saying, "I'm sorry, but the lady suddenly feels faint."

He and his partner got up and made for the exit.

The head waiter rushed over. "Lieutenant Adams, is there anything wrong?"

"Not at all, Pierre," Adams assured him.

The President flashed the man a dazzling feminine smile, and murmured, "I just feel a little faint, Pierre; but we certainly shall return some other evening."

"I do hope so, Mademoiselle."

Adams, still stunned, helped Jeffers

on with his wrap, and escorted him to the elevator.

As they walked slowly back to the White House, Adams shuddered, sighed, and said, "You can never know, Excellency, what a blow it was to me to find that you are not your sister. I saw a photograph of her once, and I believe that I actually fell in love with it. She must have been a wonderful girl!"

Steel Jeffers stiffened suddenly — Adams could feel it in his fingertips on the President's elbow. Then he relaxed. "Helen and I placed the welfare of America ahead of anything else—I still do. But events—and James Dougherty—have hemmed me in. Well, anyway, I am glad that you feel as you do about Helen. Don't give up hope, Jack. Some day, perhaps—" He stopped abruptly.

"Is Helen still alive?" Adams eagerly exclaimed.

Steel Jeffers passed his hand in a tired gesture across his face, and shivered. "I don't know just what I'm saying." His voice broke strangely. "In the language of the younger generation, let's 'skip it'."

He remained in moody silence the rest of the way to the White House, and dismissed his escort at the steps of the servants' entrance.

Lieutenant Adams stood at the foot of the steps, and gazed up at the seeming girl, until the door closed. Then he hastened to his own quarters on P Street, his mind a turmoil of emotions. All night long he tossed on his bed, longing for the girl whom he had thought he had found, only to lose again.

The next day, when Adams reported for work at the White House, haggard and wan, he learned that Admiral Southworth's condition had improved, and that a special amphibian ambu-

lance-plane was already on its way to the Adirondacks to bring him back. Suppressed excitement pervaded the executive mansion. Secretary Dougherty smiled leeringly through his black beard, his eyes twinkled brightly.

He even slapped Adams jovially on the shoulder, and ejaculated, "Well, my boy, back to normalcy, eh?" Then stiffened guiltily, as thought he had said too much. But Adams's thoughts were on Helen Jeffers, and he hardly noticed.

Shortly after lunch a motor-ambulance arrived at the White House from the Potomac naval air base, and two gobs with Red Cross brassards on their sleeves carried in a sheet-covered figure on a stretcher.

Secretary Dougherty bustled officiously up to the bearers, and was about to give some order, when Franz Vierecke, with unusual assertion shining in his pale blue eyes, elbowed him to one side, exclaiming, "Nein! He moost haf rest!"

So the shrouded figure was carted off to one of the guest-rooms of the White House.

But the return of Admiral Southworth did not immediately bring matters back to normalcy. The next day strikes broke out in Boston, New York and San Francisco. The police and State troops held aloof. But black-coated Federal soldiery moved in, and kept the strikers effectively in check, handling the situation with such finesse and regard for popular sympathy as to make evident that Secretary Dougherty was not in charge at the White House, and that Steel Jeffers was still running things.

Doctors and nurses were provided for Admiral Southworth, but still a black-uniformed military guard, placed in front of the door of the Presidential bedroom, denied admittance to all except Dougherty and Vierecke.

Students rioted and staged demonstrations at Harvard, Columbia, and Stanford. The ring-leaders promptly disappeared, but there were no wholesale executions.

That evening someone heaved a brick at Lieutenant Adams in the street. And all through the night he could hear sporadic popping noises throughout the city, as on the night before the Fourth. Each pop signified to his ears the elimination of one more potential enemy of the existing regime.

The next morning on his way back to work, he had to pick his way through the remains of several barricades, and once he slipped on a dark red slimy puddle. He shook his head sadly. Poor misguided individuals!

That day three things of note happened. First, an investigating committee from the Senate, headed by Senator Bridges of New Hampshire, and accompanied by armed guards loaned by the State of Maryland, called at the White House, demanded to see President Jeffers, and were denied admittance. Lieutenant Adams marveled that the Marylanders were not arrested for treason. Secondly, Admiral Southworth, in a wheelchair, was pushed to the basement laboratory by Dr. Vierecke, and remained there for several hours. And that evening Liam Lincoln accused Jack Adams of disloyalty to the Cause for refusing to divulge to his fellow-conspirators the inside dope on the President's illness. Hot words again ensued, and a narrowly averted fight between the two of them.

The next day Senator Bridges' resolution, declaring the Presidency vacant, was called-up for a vote in Congress. The leaderless yes-men of House and Senate did not know which way to turn. The few really intelligent members of the Administration forces began to wonder how to take advantage of this

situation to advance their own ambitions.

Then suddenly in the midst of the debate Steel Jeffers went on the air. His well-known voice boomed out of the little radio in the Senate restaurant. Instantly, the news swept up to the cloak-rooms. A loud-speaker on the clerk's table was turned loose on the startled assemblage.

As the ringing appeal for peace and tranquillity and loyalty resounded through the chamber, the opposition crumbled, although some die-hards still refused to believe.

"It's a trick!" cried Senator Bridges. "An 'electrical transcription' of the President's voice is being used to fool us!" He rushed from the chamber, phoned the White House, and was informed that Steel Jeffers was broadcasting from his sickroom. "But has anyone actually seen him, to know that it is he?" Bridges demanded.

Over the air came the answer, in the unmistakable voice of Jeffers himself, "You still doubt that I am back in the saddle? Then let the Senate Committee call tomorrow at 2:15. I shall receive them in person."

The next afternoon Senator Bridges and his colleagues, with their bodyguard of Maryland State troops, arrived at the White House. The doors were thrown open by the negro attendant, and they marched in.

The large hall was empty of any other persons, and had a closed-for-the-season look: shades drawn, musty smell, furniture shrouded with sheets. But, as the attendant closed—and locked—the doors, the sheets were whisked off of the supposed furniture—machine-guns, manned by black-uniformed troops.

A door opened at one side, and Secretary Dougherty emerged, grinning evilly through his black beard, his eyes

snapping. Behind him there debouched into the hall a score of Federal soldiers. Rubbing his hands gleefully together, the Secretary commanded, "Gentlemen, please reach for the ceiling."

But the Captain of the Marylanders stepped resolutely forward. "By whose authority?" he demanded.

"By the authority of the President!"

"It's a lie!" shouted Senator Bridges. "Steel Jeffers is dead!"

The Captain of the Marylanders snatched out his revolver, leveled it at the Secretary of State, and squeezed the trigger. A jet of flame roared forth.

CHAPTER VII

Murder

AN answering roar came from the gun of one of the black-uniformed Federal soldiers, and the Maryland officer pitched forward, dead.

Secretary Dougherty staggered backward and his dark eyes rolled. He straightened. His red lips parted in an animal snarl. "I wear a bullet-proof vest," he snapped. "And fortunately the Maryland militia still carry only thirty-eights, instead of forty-fives. Gentlemen, surrender."

The entire delegation promptly raised their hands aloft, and were disarmed. The militiamen were then herded away, and the doors of the Blue Room swung open to admit the Senators.

At his desk in the bay window sat the President, pale and frail-looking, but eyes snapping with old-time vigor. At his side stood Lieutenant Adams; and banked behind him was a full squad of black-coated Federals, with automatic pistols in their hands.

"Ah!" Steel Jeffers commented, in tones appropriate to his name. "I am highly honored. Is it true that you gen-

tlemen have the temerity to doubt my existence?"

Senator Bridges coughed embarrassedly. "Well—er—you see, Excellency, it was quite natural—er—"

"Cannot the President of the United States take a slight rest," snapped Jeffers, "without a pack of jackals snarling for his corpse?" His voice broke. His eyes wavered huntedly for an instant. Then he coughed, and continued incisively, "Kindly return to the Senate, and inform your associates that Steel Jeffers is alive—and in good health—and *sane!* Another occurrence like this will compel me to dissolve the Congress!"

"But, Excellency," interposed Secretary Dougherty, "ought these traitors be permitted to leave?"

Jeffers sighed, then drew himself erect. "Let them leave while the leaving is good!"

As Dougherty ushered out the thoroughly cowed delegation, the President turned his eyes toward his aide, and asked with a grim smile, "Well, Jack Adams, do you approve?"

Surprised, Adams stammered, "You—you know my views about reprisals. I am glad that you spared them."

Jeffers smiled the ghost of a smile. "I have set my hand to the plow, and must go on to the end of the furrow.—Ah, Dr. Vierecke. You take me back to my bedroom."

The white-coated doctor strode across the room, assisted Jeffers into his wheel-chair, and wheeled him out.

Before nightfall Governor Carter of Maryland and Senator Bridges of New Hampshire had been mysteriously assassinated. America was rapidly getting back to normal.

That evening in Adams' quarters, the Lieutenant was crowing over his discomfited co-conspirator, Liam Lincoln.

"Hasn't it all turned out just as I prophesied? The time had not yet arrived for us to strike the blow for freedom. Fellows, if you'd taken Liam's advice instead of mine, where would we all be now? In a wooden box like the Governor of Maryland and the Senator from New Hampshire. As it is, both we and our conspiracy still live."

Lincoln viciously pushed back his black forelock. His dark eyes snapped with fanaticism. "Jack, why don't *you* shoot the President?" he sneered. "You're not afraid, are you?"

Adams stared back contemptuously. "Don't be an ass, Lincoln! If we make a martyr of Steel Jeffers, his regime will live on. And you know how much worse Secretary Dougherty would be than Jeffers."

"But Vice President Nieman would succeed to the Presidency, wouldn't he?" asked roly-poly Simeon Baldwin.

"Not if Nieman happened to die conveniently. In that event, the Secretary of State would take over."

"Then why doesn't Dougherty arrange *both* assassinations?" asked Cabot the chemist, ruminatively.

"Because, so long as Jeffers displays just the right combination of ruthlessness and proletarian appeal, Dougherty is sitting pretty. Say, that gives me something to keep in mind." Adams' gray eyes narrowed thoughtfully. "If Steel Jeffers should ever become permanently ill, Dougherty will bear watching."

"*You* will bear watching right now," asserted Liam Lincoln under his breath.

Adams ignored him.

In the days which followed, the President became more and more his old forceful self. Once again he took sadistic delight in the ruthless pacification of America. One by one the individuals who had raised their voices

against him, either disappeared or precipitately fled the country. Those newspapers which had had the temerity to assert the freedom of the press, found their stock and bonds bought-up by the Federal Finance Corporation.

Admiral Southworth, too, recovered his health, and again devoted himself to his basement laboratory as of old.

Adams resented the growing influence of Dougherty and the resulting ever-increasing ruthlessness of the President. And he puzzled over the fact that Steel Jeffers seemed to take an amused interest in him. Formerly he had treated Adams as a mere appurtenance of the executive offices; but now, whenever he spoke to his aide, there was a twinkle in his cold purple eyes, with perhaps a trace of scorn and contempt in it.

At Adams' first opportunity, when Admiral Southworth and Dr. Vierecke were both absent, he hastened to the potted plant in the basement corridor. He plunged his fingers deep into the soil of the pot, he carefully sifted the earth; but the key was gone!

That night, when he reported this loss to the meeting of the conspirators, there occurred his bitterest break thus far with the fanatic Liam Lincoln, who heatedly accused him of lying—of being an admirer and a supporter of the President.

And there was just enough shadow of truth to this accusation, so that Adams could not reply very forcefully. He merely gave his usual rather lame retort about his daily risking his life in the very den of the enemy while Liam Lincoln skulked in the background.

The meeting broke up with considerable bad feeling, Lincoln's parting shot being, "If you are really on the level, Jack, you can prove it in just one way. Get into that laboratory, and find out what is going on."

"I will!" Adams rashly retorted.

All night he lay awake, thinking, worrying, discarding one plan after another. By morning he had evolved an idea.

So he carried a suit of overalls and a pair of telephone linemen's spurs with him to the White House, and at the first opportunity sneaked down into the subcellar, the floor below the one on which the laboratory was located. Hurriedly he donned the overalls, strapped the spurs onto his legs with the spikes outside. Noiselessly as possible, he crowded himself into the ventilator shaft and struggled up. It was tough going. The shaft was narrow and the spikes on his cleats did not bite very easily into its walls.

But finally he made it! His head reached the level of the grating of the laboratory outlet. He heard the voices of Southworth and Steel Jeffers. Peering through the grating, he almost uttered an exclamation of exultance. For Southworth held poised in one hand a hypodermic needle, and in the other a diaphragm capped bottle. By sheer luck, Adams had finally obtained sure proof of the fact that Jeffers was being inoculated regularly with the strange substance in the bottles.

Holding his breath tensely, he watched Southworth jab the needle into Jeffers' arm. The President, his coat off, and his sleeves rolled up, jerked his slim, unmuscular arm back with an exclamation, then laughed nervously.

"Guess I'll never get up enough backbone to take that needle without wincing," he remarked a bit hoarsely.

The injection was completed in silence that remained until Jeffers had again donned his coat. Then, with an almost curt shortness, he left the laboratory, his lips tight, and his face set in an expression of stoniness and determination.

Southworth went about cleaning up the laboratory, restoring the needle and bottle to its place. Adams remained motionless in his position behind the grating.

A sound at the laboratory door attracted his attention, and he turned his gaze to see the Prussian, Vierecke enter. Southworth turned to face him.

On Vierecke's face was a triumphant grin as he closed the door carefully behind him, then drew a gun from his pocket.

Southworth stiffened. "What does this mean, Franz?" he asked.

"It means, we haf come to der parting of der ways, Southworth. No longer are you necessary to my blans."

In a voice level but charged with emotion, Southworth replied, "Go ahead and kill me; but, as sure as God made little fishes, you'll lose by it. You still don't know the complete formula."

"Don'd I? Vell, lissen to diss." There followed a string of chemical language, quite meaningless to the man concealed in the chute.

Admiral Southworth gasped; and that gasp was a complete admission that his assistant had at last learned the whole of the secret which the Admiral had thus far so jealously guarded.

"Ha!" rang out the triumphant voice of Franz Vierecke, followed by a shot, a thud, and a gurgling groan.

CHAPTER VIII

The Assassins

WITH a sudden resolution Adams groped within his overalls with his left hand for the automatic pistol on his right hip, then shifted it to his right hand. Quietly opening the grating of the ventilator, he peered out.

The bullet-headed Franz Vierecke was standing with his back to the grille,



He watched Southworth jab the needle into the President's arm

holding a smoking thirty-eight, as he stared down at the sprawled corpse of the Admiral.

Adams reached out, leveling his automatic. Remembering Secretary Dougherty's bullet-proof vest, he took careful aim at Vierecke's head. "Hands up, Doctor!" he commanded.

The white-coated Prussian wheeled catlike, firing as he turned. But Adams fired first. Both weapons roared, and the laboratory assistant fell backward across the body of the Admiral. Adams scrambled hastily out of the shaft and thrust his gun into its holster. The two bodies still lay inert.

He had to work fast! He unbuckled his climbing-irons, stripped off his overalls, and thrust them all down the shaft. He took all the small bottles from the ice chest, emptied them in the laboratory sink, and threw them after his discarded equipment. He hastily wiped the dirt from his face and hands on a towel at the sink. Taking the key from the pocket of the dead Admiral, he unlocked the door, stepped out, and locked it behind him.

As he turned, and slid the key into his pocket, one of the White House guards came pattering around a corner. The man halted and raised his arm in salute. "I thought I heard shots, Sir."

"Correct," Adams grimly replied. "Vierecke and Southworth have killed each other. I go to report to the President."

Stunned horror widened the man's



eyes. Then they narrowed suspiciously, and he reached for his hip. But Adams' fist caught him on the point of the jaw. Down he went in a heap. Adams ran along the corridor toward the stairs.

In the Blue Room he found Steel Jeffers and the Secretary of State conversing together at the big desk in the bay window.

Raising his arm in salute, Adams panted, "Things will be popping around here in a few moments, and I want to report before they pop."

Dougherty glared at him, but Jeffers calmly said, "Go on, Lieutenant."

"I happened to be in the basement," Adams replied, "when I heard Admiral Southworth and Dr. Vierecke quarreling in the laboratory. The door was ajar, so I looked in. Vierecke was pointing a pistol at the Admiral, and the Admiral was saying 'The injections are all gone. If you kill me, there will

be no more!"

"What!" Dougherty's face went white. "Did he—?"

But Adams interrupted. "Just a moment. I heard Vierecke retort, 'I know the formula.' He recited a lot of chemical gibberish. The Admiral nodded and admitted, 'Yes, you've got it right.'"

Dougherty settled back in his chair, the color flooding into his cheeks again. Steel Jeffers was watching Adams like a cat.

Adams continued, "And then Vierecke shot the Admiral. I dashed in, but too late to save him. Of course I shot Vierecke. You'll find the two bodies lying in a heap on the floor of the laboratory. Here is the key." He flung it down on the desk. "And here is my gun, Sir, with one cartridge exploded." He pulled it from its holster, laid it down beside the key, and drew himself up to attention. "Private Jones tried to arrest me, Sir, but I thought I had better report to you."

The two men at the desk stared at him with fascinated horror. Then suddenly Dougherty reached inside his coat, and yanked out a gun.

"The Presidency is ended!" he shouted, as he fired at Steel Jeffers.

But a split second ahead of his shot, another shot roared forth in the echoing Blue Room. Adams had snatched up his own weapon from the President's desk, and fired. The impact of its forty-five-caliber bullet smashed the forehead of the Secretary of State and hurled him backward.

There was a tinkle of glass behind the President as two black-uniformed guards crashed in through the French

windows. "Are you all right, Excellency?" they cried.

"Perfectly," Jeffers calmly replied. "He never touched me."

"I—I'm glad," breathed Adams.

"Take out the body!" the President crisply ordered. Then, as the two guards departed with their grisly burden, he turned to his aide, and said sharply, "They do not live long, who stand in the way of Steel Jeffers. And, now, Adams, I want the truth about what happened in the laboratory. The truth, mind you!"

Suddenly, as it dawned on Adams that Dougherty's death had removed the only reason for not killing the President, he leveled his gun at Steel Jeffers. "The truth is that I destroyed all the little bottles."

Watching the President intently, keeping him covered with the automatic, Adams backed toward the main door of the Blue Room. He groped behind him for the knob. But suddenly the door was flung open. He was seized from behind, and his arms were pinioned to his sides. Like a flash, Jeffers dashed around the desk, and disarmed him. His captor was the guardsman whom he had slugged in the basement corridor.

The President now fired three shots in the air, and other soldiers came running.

"Take him to the War Department," Jeffers commanded, "and lock him in a cell. Don't let any harm come to him. I want him saved for *public* execution."

Manacles were snapped onto Adams' wrists, and he was dragged, kicking and struggling away.

(To Be Continued)

DON'T MISS IT!

The November issue of AMAZING STORIES Monthly On Sale at all Newsstands September 10

SCIENCE QUIZ

We present the following science questions and problems for your entertainment, and at the same time, as a pleasant means of testing your knowledge. How many can you answer offhand, without referring to an authority? Par is 80%.

TRUE OR FALSE

1. The Scorpion is both a constellation and a sign of the Zodiac. *True.... False....*
2. There are no two dimensional figures in existence. *True.... False....*
3. A luminescent light gives off light without any heat. *True.... False....*
4. A calory is the amount of heat required to raise one gramme of water 1° Centigrade. *True.... False....*
5. A diamond is the most valuable of precious stones. *True.... False....*
6. Plants use up carbon dioxide and give off oxygen. *True.... False....*
7. A spider is an insect. *True.... False....*
8. The formation of alcohol requires a living organism. *True.... False....*
9. The Dodo was a fabulous bird. *True.... False....*
10. There are no mammals that fly. *True.... False....*

STRIKE OUT THE WORD THAT DOES NOT CONFORM

1. Baby, calf, colt, doll, kitten.
2. Elm, brier, maple, oak, poplar.
3. Cornea, iris, retina, pupil, eyelid.
4. Scalpel, scissors, scythe, sickle, sabre.
5. Opaque, translucent, transparent, lucid, diaphanous.

SCIENCE TESTS

1. Heat travels along a metal rod by means of: radiation, convection, conduction, surface tension, adhesion.
2. Shellac can be removed from your hands most easily by: turpentine, alcohol, benzine, water, olive oil.
3. The common housefly is responsible for spreading: yellow fever, bubonic plague, malaria, smallpox, typhoid.
4. Sulphur, carbon, iron, silver and nitrogen are all: minerals, compounds, gases, elements, metals.
5. When a substance changes from a liquid to a gas, its density: increases, remains constant, decreases, disappears, changes color.
6. Sound travels at the rate of: 186,000 feet per second, 1,100 feet per second, 150 feet per second, 5,000 feet per second, 5280 feet per second.
7. If a bar of iron is heated, the iron increases in: volume, weight, density, specific gravity.
8. If blood gushes in pulsations it comes from an: artery, vein, capillary, lymph vessel, ganglion.

9. The volume of gas varies directly with the pressure is known as: Hooke's law, Zeeman effect, Einstein theory, Boyle's law, Archimede's principle.

10. The season of the year in which the sun shines most obliquely upon any region is called: spring, summer, fall, winter.

SCRAMBLED SCIENCE TERMS

1. Pitch like natural hydrocarbons L A T H S A P _____
2. Arachnid with whiplike stinging tail P O I S O N C R _____
3. A headache remedy and analgesic I S - P R A I N _____
4. A negatively electrified corpuscle contained in atoms C O R N T E E L _____
5. Electrical device having variable resistance S H O R T T E A _____

MARK THE WORD THAT HOLDS TRUE

1. All vertebrates have: hair, legs, scales, bones, tails.
2. All theaters must have: seats, a stage, scenery, an open space, curtains.
3. All fruits have: seeds, grow on trees, are soft, can be eaten.
4. All cows have: horns, give milk, are ruminants, have no teeth, dislike red.
5. Any prime number is divisible by: three, four, itself, five, any even number.

PROBLEMS

1. A miner, out of work, has a heavy gold chain of 50 links. Each link is worth \$1.00. He guarantees his landlord a link a day for room and board. After the fifty days are up, at which time the mine will again open, the miner plans to redeem the chain and have it soldered together. How few links can be cut to pay the landlord a link a day?

2. A blacksmith has a block of stone weighing 40 pounds. Th mason breaks the stone into four pieces, which pieces may be used with scales to weigh out any number of pounds between one and forty. What are the weights of the four pieces?

3. A man, flying toward a distant airport at a set rate of speed, lands at another airport short of his destination, where he stays 10 minutes. Proceeding at 4/5 his set rate, he arrives at his destination 31 minutes later than had he flown straight toward it at the set rate of speed. If the airport at which he first stopped had been 10 miles further he would only have been 25 minutes late. How fast was he traveling at the set rate of speed and how far was his destination?

DISCUSSIONS

AMAZING STORIES will publish in each issue a selection of letters from readers. Everybody is welcome to contribute. No holds barred. Bouquets and brickbats will have an equal chance. Inter-reader correspondence and controversy will be encouraged through this department.



STANDARD?

Sirs:

The latest issue of the new AMAZING STORIES shows improvement, and in ways it shows definite backward steps. The first step is a backward one. The cover. I would much rather have a second rate drawn one than the terrible thing you put out. By cutting off the top title you could never tell it from *Horror Stories*. Scientification fans as you know pride themselves in reading a "clean" type of literature, and stuff like the August cover is certainly not desired. Until you really show us something scientific in your photographic covers I'm afraid your new innovation will be a disappointment.

Bob Bloch may be able to write weird tales, as I am well aware, but his science fiction stories certainly need some going over. However, for the standard that AMAZING STORIES has set for itself, the story was at least fair. The illustration was quite good, but not as good as it could have been. I couldn't decipher the signature of the artist, but it certainly was NOT Paul.

Time for Sale was somewhat of a different time story, and a very good one. The plot was rather weak and I imagine it could have been written better as far as style is concerned. It rates quite good according to the standard that we must adopt for AMAZING STORIES.

The Blinding Ray. Now, we're getting somewhere. That was something like real scientification should be! It rates the best in the issue. Steher, who seems to be a new author, has quite a bit of talent. The plot was strong, well connected, and well written. It rates super-colossal in AMAZING's standard and even elsewhere it would be a darn good yarn.

The Meteor Monsters was also a real story. It rates second in the issue. A few more stories like that and AMAZING will be back to its old place. Maybe some people think that scientification is going to the dogs, but in one issue two new authors write better stories than the old ones—well, judge for yourself.

Now, I am really surprised, for the third story, *Germs of Death*, was written by a new author. Three stories in a row, getting first, second and third places respectively, and all by new authors. I imagine that AMAZING will be the "new authors' paradise" before long. My opinion of the mag has gone up several notches. (But the bad memory of the cover keeps popping up.)

Kidnappers of Space has the old realistic touch to it. One of the few stories that you can "live" in. I guess that it is a tie with *Germs of Death*.

The last story, *Outlaws of Space* was a fitting finisher for the mag. Keep up the good work. Get better covers and more good stories and AMAZING will be up with the best, and it's not the worst in the field now.

T. Bruce Yerke,
1256 N. Kingsly Dr.,
Hollywood, Calif.

The editors wish to disagree with Mr. Yerke on one point in particular. AMAZING STORIES has not set a standard for itself, at least not the sort of standard Mr. Yerke hints at. Obviously the mentioned standard is a rather lowly one, since no less than six stories are rated as greatly favored by the writer. Either these six stories are exceptional, or Mr. Yerke will have to adopt a new standard in the future. We hope he will find the present issue as far above "standard" of the preceding issue, as he did August over June. Anyway, thanks much, Mr. Yerke. We've got more of that super-colossal "standard" coming up.—Ed.

DREAMS COME TRUE

Sirs:

Purchased the second issue of the revitalized AMAZING STORIES today and was just as happily amazed as when I bought the previous issue. Your cover policy is the most amazing part of you. For years I have dreamed, asked for, encouraged and abetted hack covers and it took you and 1938 to banish strong men, gas saving pills and coffee routes off them and give us a double cover. It's like seeing one's invention acclaimed, or one's masterpiece published.

The stories I haven't very much to say about for the magazine is in new hands and therefore comparatively new to command classics and nothing but the finest. It will take time to grow out of the "... ob you cad, sir!" type of story which the August issue included.

The departments demand and receive from me plenty of applause. The magazine cannot do without "The Observatory," "Discussions" and "Meet the Authors." I do not care much for the various tests, quizzes and questions, but undoubtedly others do.

The interior illustrations can stand plenty of improvement.

In closing I wish to say that I will be looking

for the monthly and the full addresses of each letter writer.

Bob Tucker,
218 E. Monroe St.
Bloomington, Illinois.

Our back cover policy has been receiving universal commendation, and we are very pleased at the reception given it. We will certainly continue to present interesting back cover features in full color, accompanied with illuminating articles descriptive of them.

We feel that our illustrations will improve vastly with each issue. What do you think of Julian Krupa, and our new cover-interior artist, Robert Fuqua? We have some really fine work on tap from them next month.

No doubt, you will be pleased to note that we are carrying full addresses in Discussions from now on. Also, that this department has been greatly enlarged.—Ed.

LIKES PHOTO COVERS

Sirs:

Have just finished reading the August issue of AMAZING STORIES. Both covers were fine business. I like your idea of photographing the front cover for it makes the mag. stand out above the other science-fiction periodicals in that respect. Mr. Jacohy has a good idea in respect to alternating paintings with photos but I suggest that you have more photos than paintings. His idea about having the photos of the authors included with their biographies is OK.

"Secret of the Observatory" is good as are the rest of the stories. "The Meteor Monsters" is the best of the lot though.

Now Mr. Editor, here is an improvement you might think over. I never did like to see part of an article in one place in the mag. and part in another place, so will you please place your articles where they won't have to be completed in another place? Furthermore, keep the different articles in the same relative position in each issue. Here's something else too, you could place the article about the back cover next to the back cover.

I am glad to see that you are making plans for a monthly. That certainly will be great.

Does Mr. Wollheim know what he is talking about? It seems to me that he should realize that any theories or ideas that are brought out in a story are not to be taken too seriously. If it was an article it would be a different matter, but fiction is fiction and not propaganda.

Your cover caption is OK, Mr. Crouch should have noticed the way it shows up on the newsstand. Keep it the way you have it.

Clifford Francis,
Box 161,
Chesapeake, Ohio.

Our photo covers have proven popular with a great share of our readers, and we feel that with further improvement, such as science, etc., we will continue to give AMAZING STORIES that "standout" effect. However, we will use paintings at inter-

vals. The cover of this issue is an example of that, and we are certain you will find it to your liking.

You will also note that beginning with this issue, we will present author's photos, one at a time.

In making up a magazine, there are certain mechanical circumstances which compel "juggling" of various features, however, we will endeavor to present our articles in as fixed order as possible. You will note that we have adopted the policy of presenting our back cover article on the last pages, opposite the cover.

As for Mr. Wollheim, we present him once more in the following letter. He speaks for himself.—Ed.

QUOTATIONS

Sirs:

I am sorry that you did not see fit to publish the whole of my letter of April 11th instead of a selected part of it. One would get the notion that I was only a crank squawking over one particular irritation rather than basing my remarks upon more enlarged and detailed objections.

You have asked me to quote specific passages. This I shall do. But first I of course do not object to the general plot of "Escape From Space" which you outline as "the hero champions and aids a helpless girl . . . from murderers." If that alone were the purpose of the story, and *political barbs which might be applicable to present-day 1938 politics left out*, then I could not object to the story save charging a back plot. But woven into the background will be found Mr. Rocklynne's political prejudices and colorings:

(Page 33) (He) rode through the . . . thoroughfares of Mars City, seeing evidences of anarchy and horror rather than socialistic order . . . "The Secretary (of the Mars Socialist State) was cruel-eyed . . ." We have routed the royalist element, for the most part eliminated the aristocracy, which was draining the lifeblood of the—"Spare me," begged Sharon. "They used the same line three centuries ago" . . . He (the socialist secretary) flung open a handsomely carved door that was marred only the deep ax-gash some vandal had cut in it.

These are the more obvious of the subtle digs taken at the socialists. The story presents the socialists as being cruel, unscrupulous, cut-throats, plotting out schemes to murder and kill and lie. They trick the hero by false and two-faced methods. Regardless of what may or may not be true, the fact is that Rocklynne has used this story to present his own prejudices and views. He injects a subtle type of poison in the minds of the readers. This is an old stunt, but this story is particularly crude.

My objection to the "Man Who Ruled the World" lies primarily in the use of a footnote for political editorializing. On page 13: "In the first part of the 20th Century the trend toward dictatorships was clearly seen. . . . America just seemed to drift into it. Those last presidents,

FACE MARRED BY UGLY SCHOOL-AGE PIMPLES?

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Roosevelt, Lewis and others, held powers that grew more important as the years passed." Here is a subtle attempt to convey the impression that Roosevelt and Lewis are dictatorially ambitious—a charge that has been flung by the most reactionary section of the American press, that most interested in maintaining Private Ownership and Big Business monopolies. The writer has no right whatsoever to echo these charges in such a brazen manner.

I have not as yet had time to read any story in your latest issue. However I note at the beginning of one story "The Meteor Monsters" the statement "William Green, president of the USA was seeking reelection as the fusion candidate of the Democratic and Republican parties." On your very first page there appears the statement "The names of all characters that are used in short stories . . . are fictitious. Use of a name which is the same as that of any living person is accidental." Very accidental indeed considering that William Green, president of the A.F. of L., is an outstanding individual of national importance at times connected in political affairs. The least any wide-awake editor could have done would be to change it to "Brown" or "White."

I repeat that the use of the magazine for "pseudo-political propaganda" is not keeping faith with your readers. But do not mistake me by thinking that I oppose stories having a sociological base. I do not. But such stories should be based upon accurate analysis of human trends and historical trends and should be presented as studies in human society, not as political rabble-rousers. If your stories will deal with dictatorships, would it not be more interesting and more "scientifically accurate" to have your authors give their ideas of the actual mental and social conditions that would lead to the setting up and maintenance of such regimes?

After I have read this latest issue, I may write again to give you my comments. On a surface survey it seems to be an improvement on the June issue.

Yours cordially,

Donald A. Wolkheim,
801 West End Ave.,
New York, N. Y.

In presenting these letters to the readers, the editors eliminate passages which repeat something already said by a previous letter. It would be tiresome to the reader to find each letter repeating what has already been said by the first one in line. Thus, we did not attempt to prove you a crank, but simply presented the portion of your letter containing that which had not been previously presented. We endeavor in this way to make Discussions an interesting and widely varied column each month. We are sure our readers understand and approve of this.

Regarding your quotations: Were the evidences of anarchy and horror caused by the revolutionists or the aristocrats? Rocklynnne doesn't say. In speaking of the cruel-eyed Secretary, for story purposes, all villains are cruel-eyed, it would seem,

and it is obvious this man was made cruel-eyed for story reasons. Witness the following quotation: "A courteous aide led him with dispatch . . ." Apparently the only socialist present who was cruel-eyed was the villain. Score one for Rocklynne. The next quotation refers to the aristocracy, and since you weren't championing them, we believe it is satisfactory even to you, to admit the ruling class, now overthrown, couldn't have been so bot, or their subjects would have been satisfied. And Sharon, an American, would beg to be spared that, don't you think? So would you. The marred door (who opened it seems to have no bearing) was marred by a vandal, and again Rocklynne does not say who. In any war, or revolution, you find vandals, corpse robbers, looters. They belong to neither side.

Tricking the hero is entirely "story." Eliminate it, and we have no story. If the Secretary is honest in his desire to have the hero convoy the heroine to Earth, it's just another routine trip, and no reason to go through the boiling zone.

The fact is, regarding your mention of dictatorships, that the 20th Century *did* produce a trend that way. What are Hitler, Mussolini, Stalin, etc., if not Dictators. As for Private Ownership, our country is built on that premise, and seems to have done right well with it. In AMAZING STORIES, we will frankly stick up for American Principles, because we believe in them. And where a foreign system offers opportunity for background for a story, we see no objection to using it. Witness "Horror's Head" in the present issue. In any other locale, it loses its whole punch.

Thus far, history has always surprised us. Therefore, any mention of an "accurate" analysis of politics in the future, seems impossible. Or would you have our writers disregard politics entirely in referring to the future? As for William Green, no reference was made to the man connected with the A. F. of L.

Just the same, Mr. Wollheim, thanks for your interest in us. We can stand criticism, but not being ignored. And we appreciate your reference to our improvement.—Ed.

THREE LETTERS IN ONE

Sirs:

Have just finished reading "Discussions" of August issue.

The letters were good. Mr. Chester Fein's five word masterpiece was by far the best, in briefness and in truth.

Your articles are interesting, but there are far too many. After all, we buy the magazine for the stories.

In the July issue there were only two that could be classed as anywhere near good. And the August issue doesn't seem to be much better, judging from a hasty scanning of a paragraph here and there. But more about the stories later.

In the July issue, "The Vanishing Diamonds" and "Escape Through Space" were the only ones of any merit whatsoever.

"A Summons From Mars"—Well, neither good nor bad, merely indifferent.



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too, were quite logical.

Arthur R. Tofte,
604 North 63rd St.,
Wauwatosa, Wisc.

FOOTNOTES INVALUABLE

Sirs:

Have just finished reading the August issue of *AMAZING* and want to express my appreciation of the way my story, "Germs of Death" was set up and illustrated. The explanatory footnotes were very fine as your contribution and in addition I found them scientifically accurate in every respect. I tried to keep the story accurate but the notes were invaluable, as I realized after re-reading the story.

I liked Mr. Tofte's story, "The Meteor Monsters" and certainly rate it a superb example of good writing. The plot is not new but that was forgotten in the excellence of the work. The new "human interest" angle is, I believe, the correct approach to this type of fiction and of the others there was not a single one which had that "draggy" effect so commonly found in former days.

A. H. Vance,
McNaughton, Wisc.

THIS AUTHOR DISAGREES

Sirs:

New *AMAZING* improving each issue. Double cover and all features excellent. Personally am opposed to torture scenes such as appeared on August cover, even though well staged and photographed. Trust new technique will forbid nightmares which have frequently haunted pseudo-scientific mags. Would appreciate, though, greater part of interior decorations by old guard of science-fictioners without whom science-fiction just isn't!

New authors doing quite well. Must take time out to congratulate Ralph Milne Farley on *Time For Sale*; pretty swell stuff!

Major Complaint: Find footnotes extremely bothersome... Altho very informative and scientifically accurate, nevertheless they violate the first principle of fiction writing, in that the very essence of all fiction is maintenance of illusion; hence reader must be persuaded to dwell vicariously with characters, and not be continually led off to the ed.'s side so that the yarn may be justified. Far better to inject science subtly into plot; then illusion may be maintained.

Since D. J. H. (strong romantic attachment) has consigned yours truly to doghouse, will shortly find time to complete and forward a long novelette for your consideration. Which is a promise.

John Victor Peterson,
72 John Street,
Newport, R. I.

Don't you think that "maintenance of illusion" is more broken up by long-winded scientific explanations by the author in the text itself, than by footnotes? The reader who is interested in the story only, can skip the footnotes, follow the character straight through. This is our main pur-

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pose in these footnotes. Of course, if you can do it subtly, fine and dandy. Where it is done that way, we refrain from footnotes. We'll be looking forward to that story, and we hope you can give us that subtle touch!—Ed.

A SCREAM OF JOY

Sirs:

When I read the July issue, or rather when I didn't read it for to be accurate I read only one complete story, I felt sure that never again would I feel the slightest urge to pick up a copy. But I misjudged myself and I read the latest copy. That is the reason for this letter.

I revised my opinion concerning your magazine. The latest issue was so great an improvement over the first that I could hardly believe my eyes and had all I could do to suppress a scream of joy! The illustrations have improved and, what is the main thing, so have the stories. I liked the cover story very much and my liking for it was helped by the article (letter) written by the author in the "Meet the Authors" column. By the way I like that idea very much also and wish to commend you on it.

A few suggestions for the new *AMAZING*: a more scientific cover. The covers you are giving us look more like a dime novel. Number two: try another artist (along with the ones you have) in the inside. All of the illustrations have the same tone. (How about Paul?) And number three: Take that silly little guy off your editorial page. That is about the craziest cut I have ever seen.

Mary Rogers,
2006 Court Street,
Muskogee, Oklahoma.

The editors certainly would have enjoyed hearing that scream. The yell for this issue ought to be audible though. We'll be listening! How about the two artists presented this time? And that crazy little guy? We couldn't make him sane, you see, he's the managing editor. But thanks, Miss Rogers, for those kind words.—Ed.

CHASE NEW IDEAS AWAY? NOT WE!

Sirs:

I still think the Popular Photography pippie can do better on your covers. They aren't yet fantastical.

BoBloch's first sfnal effort wasn't so turribly good. However, I expect him to improve in time. Whole story a bit bloody, don't you think? Mowin' 'em down by the carloads, body toppling in as you open the door—Ugh!

Why do you always sign "Ed." to footnotes? They're the work of the authors, aren't they?

I like the smaller illustrations you stick into your longer stories. Can't say as much for the large ones. McPhail suggested that the sweet little girl in The Blinding Ray's illustration should have been standing on a cake of ice, and the gent standing in the background oughta been armed with an overseer's whip and bolding the leashes of a pack of bloodhounds. I never read Miss Stowe's monstrosity myself, but it sounds right.

And judging from the illustration, "The Meteor Monsters" should have been named "Potato-Men from the Meteor." Similar uncomplimentary remarks might be made about most of your other illustrations.

In "Time for Sale," I believe dear old RalFarley (ouch!), D. Tm., has at last given us an idea with good science to back it up. The story itself was also very good.

"The Blinding Ray" was a pretty good story.

And "The Meteor Monsters," despite the fact that it started out with a view of political and international line-ups about as goofy as those of "Messiah of the Cylinder," turned out to be a good tale and, as you said, reminiscent of "The War of the Worlds."

Chet Fein is commendable for a brevity which I lack, though I can't echo his sentiments.

But really, is murder the crime of all crimes it's made out to be? I can think of lots worse things. Such as chasing a man out of town because you're afraid he'll bring you a new idea.

Jack F. Speer,
137 N. E. Park,
Oklahoma City, Okla.

Yes the footnotes are the work of the Editor. Where they are not, it will be indicated that way, just as a footnote in "Secret of the Observatory" regarding the 3.3 gun was banded.—Ed.

BEAUTIFUL!

Sirs:

You have created wonders for the new AMAZING. At last it has some pep. All your stories were good. The departments are superb. The Editorial is excellent. In fact, everything about you is

beautiful. Now the monthly is only a short while away!

Leonard Kramer,
228 East Oglethorpe,
Savannah, Ga.

STILL THE ARISTOCRAT

Sirs:

I have just finished the second copy of the AMAZING STORIES, and I think that it is a vast improvement over the old, and that you will still keep it the "Aristocrat of Science Fiction." I think your idea of stories based on scientific facts and not wild imagination the greatest advance in this particular field. I like the space travel stories the best.

Percy Ingram,
1252 21st Street,
Hollyburn, B. C., Canada.

THANKS, VIVIAN

Sirs:

Just a few comments on AMAZING STORIES. I was surprised to see the many changes until I read in the Observatory that AMAZING had changed hands. You certainly have improved on some of the old styles, such as the covers (back and front), and the contents page. Color photos certainly are an improvement. I was gratified to see the back cover put to scientific use. Thank Heaven AMAZING is original! "Meet The Author" is a novel idea. It introduces the reader to his or her favorite author.

The stories in this issue were exceptionally good, and your new features should be carried on, please. Congratulations on taking over the best science fiction magazine on the market.

Vivian E. Metherall,
1780 E. 4th Ave.,
Vancouver, B. C., Canada.

THE COVER

Sirs:

The August issue is certainly an aggressive one—horrible war-weapons wreak havoc, sex appeal flames frequently.

The cover, as such, is captivating, but as a representation of certain events in Bloch's story, it's cockeyed. According to the author, Lois is blonde; the cover has her mousey brunette. In the tale the "great, naked yellow arms were . . . pressing the horrible looking thing closer and closer to the white throat of the captive girl"; on cover the white-armed guy is aiming at her chest! And for a gal who's been chained for quite a while, her makeup's pretty unsullied. (I also look for moving-picture boners.)

SECRET OF THE OBSERVATORY contained the most scientific basis and was also the best story. TIME FOR SALE, in spite of the too-obvious ending, and GERMS OF DEATH were the other good stories.

THE BLINDING RAY was scientifirmly founded. (Even the sun, if aimed correctly, could act as an agent of blindness.) TIME FOR SALE and THE METEOR MONSTERS have scienti-

footnotes but footnotes are never an integral part of a fictional piece.

The word "cad," seldom used in actual life, is hurled a few times; Jap spies run amuck; and, on the whole, there is too much bloodshed. Can't the authors create machinery to build up civilization instead of tearing it down? Can't science-fiction fans, supposedly enlightened and educated individuals, be fed less gory grub?

Anyway, I'm glad there's a chance of going monthly and the format of the mag is okay. I would like Frank R. Paul, smooth edges, and elimination of "Every Story Scientifically Accurate." We must beware of making the definition of "scientifically" too vague so that it covers too many multitudes of sins.

*Scymour Kapetansky,
1524 Taylor,
Detroit, Mich.*

Checking on your statement, our eyes must be deceiving us. To the editors, Lois certainly looks blonde, at least, any beauty salon expert would unhesitatingly designate her as such, and science also designates that color as blonde. Perhaps your definition of blonde is of the chemical type, induced with peroxide?

If you will place your own hand across the figure of the Mongol, you'll instantly note the yellow cast. We are sure there exists nothing like a "yellow" race, if you consider the primary yellow color.

When the photo was taken, the radium weapon was *several feet* from the girl. We had to be very careful, as the glowing tube was dangerously hot. In fact, the Mongol actually was badly seared when it came in contact with his skin. Only a generous coating of grease saved him from injury. We can still remember with respect the sharp sizzling sound of the contact.

The technical difficulties of photography, reproduced in these color covers, tends to make things appear sometimes vastly different than intended. Thus, to smear up her face, we might have run the risk of gaining some unintended horrible effect.

But thanks anyway, for calling our attention to "boners." We hope you continue to study the covers as closely.—Ed.

OUR OWN QUESTIONS ANSWERED

Sirs:

The new issue was even better than the last. The magazine now is a wow compared with what it was before the new ownership, but it can still go up the ladder, so don't get too cock-sure yet, old man, you've got a mighty big job ahead of you before AMAZING comes up out of the morass into which it had fallen.

I'm one of those "goofy" guys that likes to collect the best of the sciencefiction mags. When it returned to Canada in '33 I started again, but when it went bi-monthly I sorta sickened and stopped saving. However, I'm keeping copies of the "NEW" AMAZING, and as long as it doesn't get any worse I'll likely keep it up.

Sooner or later, some fellows are going to bring up the cry for a Quarterly, so I'll tell you right now that I'm for it, but think you should stick to the monthly for a year or two and get it going strong. Right now, I'm going to ask you if there is a ghost of a chance of going large format as in days of yore? You'll probably snort and say "Sentiment!" but it's not entirely that. For one thing I hate to see a science fiction magazine stuck down with all the lousy junk like g-men, rotten detectives and the rest of like ilk. Only large format will ever make the newsdealer put AMAZING where it belongs, up with the "slicks."

Your cover was great for the August issue, but again I say—by no means science-fictionic enough to suit me. Give us a good cover that literally shouts "AMAZING" to the blue heavens!

Your back cover is better than the front! Again—congrats!

Now for the stories—all were fine, I enjoyed every one. But—I'd like to see each issue a long novel that runs about 50 pages. Something we can actually sink our teeth in and enjoy, something that will fill in an evening with a story that is well developed, and which is complete. So, how about it?

Couldn't you set aside a full page for the "Coming's?"

You asked a question or two in your comments, and I'll try to give my answers to them, turn about's fair play, you know, and as I like to have mine answered—

"Need the writers go to ridiculous impossibilities to amaze the reader?" you ask. I beg to bring this point up—things that today may appear to be ridiculous impossibilities tomorrow may be quite likely. The advancement of science has everything to do with that. 100 years ago you or I would probably been burned at the stake for suggesting that our descendants would talk through thousands of miles of space as we do today. It was an impossibility, but today we use the radio all the time, and it seems perfectly natural to us. Why not say—"ridiculous improbabilities in the light of present day science?" That's more to the point. I believe that whatever man can imagine, man can do. Authors will always have the subconscious idea of earth-born creations to mingle with their ideas of extra-terrestrial life. They cannot imagine things entirely beyond the capacity of their earth-tied mind. Look at the "Meteor Monsters," Tofté gave them eyes and legs and an earthly gait. Why? The artist made them look like over grown potatoes. Why? Because they couldn't imagine anything so startlingly different from earth life that it would be entirely unbelievable. Don't put restrictions on your authors. Let their imaginations roam at will. Don't keep them earth-bound. After all, why should life from a world billions of light years distant even remotely resemble anything we have here?

"What are the ships with tails of fire Elisha saw in his vision? Are they . . . legendary memory of actual fact?" I think so. Or rather, I like to think so. Earth is very, very old and man is

much older than we think. Thousands of years ago, when there were no newspapers, no books for the common people to read, and all was passed down from father to son by word of mouth, and the tale was added to, subtracted from and distorted through the generations, then a perfectly natural happening, or some occurrence unexplainable would assume proportions entirely foreign to the thing that really did happen.

*Leslie A. Crouch,
41 Waubeek St.,
Parry Sound, Ontario, Can.*

CORRESPONDENTS WANTED

Howard Hackett, 201 West 111 Street, New York, N. Y., is looking for correspondents. . . . Arthur L. Widner, Jr., Bryantville, Mass., wants correspondents interested in science in general, music, sports, writing, or magazine trading. . . . Leonard J. Carter (16), 95 Barlow Street, Walworth, S. E. 17, London, England, wishes correspondents, especially Anzacs, who read science fiction. . . . Percy Ingram, 1252 21st Street, Hollywood, B. C., Canada, desires to get in touch with pen-pals among the fair sex. He's 21, and he thinks the girls write and think more sensibly than the boys. . . . P. L. Spencer, 60 Highland Road, Upper Norwood, London, S. E. 19, England, would like to exchange letters with readers interested in

biology, entomology, philately, mysticism, politics, microscopy, art and psychology. . . . William Veney, 11a Lawson Street, Paddington, Sydney, NSW, Australia, would like to exchange letters with AMAZING STORIES readers, foreign and Australian. He's 14. . . . Norma Williams, 18 and single, would like pen-pals in North and South America and England. She is interested in stamps, reading, chess, microscopes, (she owns a 450X), and various other subjects. Write her at 35 Cook Road, Paddington, Sydney, NSW, Australia. (If you don't know William Veney, Norma, this is a coincidence!)

COLLECTORS, ATTENTION!

Mr. Donald W. Kaiser, 16 E. Prentiss St., Iowa City, Iowa, has AMAZING STORIES beginning with April, 1926 inclusive to May, 1935. Also has the Annual and all Quarterlies. Excellent condition. Will sell to highest bidder. . . . T. S. Sparrow, R.2, Fairview Ave., Oneida, N. Y., would like to procure back issues of AMAZING in exchange for other magazines. . . . Seymour Kapetansky, 1524 Taylor, Detroit, Mich., has back copies for sale. . . . J. H. Oehrig, Jr, 14 Wallace Street, Rockville Centre, Long Island, has science fiction magazines from 1933 to date, with scattered previous issues. . . . Albert Field, Jr., 364 Beech Spring Road, South Orange, N. J. has AMAZINGS in perfect condition.

I FOUGHT IN SPAIN

By FRANK E. TINKER, Jr.

Here's a real scoop scheduled for the September issue! The author was a fighting pilot in Spain for more than a year. He also wrote the series of Saturday Evening Post articles and the book, "Some Still Live."

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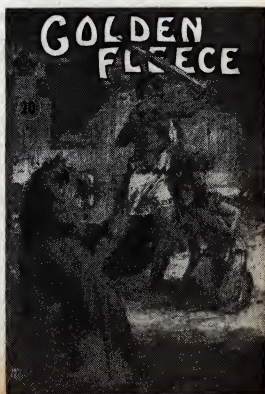
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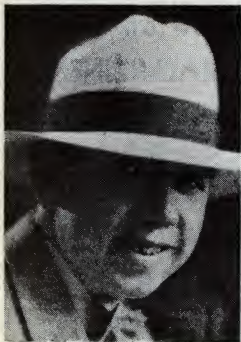
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Meet the Authors



ED EARL REPP

Author of

THE GLAND SUPERMAN

MANY readers of AMAZING STORIES will remember when the name of Ed Earl Repp was almost synonymous with the phrase "science-fiction." He is one of the earliest pioneers in this field of fiction, authoring such stories as "The Radium Pool," "World of the Living Dead," etc., and after a number of years writing western books and novels, is returning to his first love with "The Gland Superman."

Mr. Repp is a westerner, from out in the fertile San Fernando Valley of California, and he lives on his own rancho, El Pequeno.

Aside from writing for various magazines, he is also a contract writer with Columbia Pictures Corporation in Hollywood where he scenarioizes western features for Charles Starrett. He is the author of a score of motion pictures now appearing on the screen, including "Devil's Saddle Legion" and many others. He is also the author of ten books now in the stalls.

"The Gland Superman" is a story Mr. Repp had in mind for several years, resulting from his study of the various human glands and their effect on the growth and development of the body.

Like many professional scientists, Mr. Repp believes something of a super race could be developed through the adjustment of the glands. Although somewhat fantastic, Professor Gale's achievement with regard to the punch drunk palooka, One Punch Hogan, in the story, is not beyond the realm of possibility. Boiled down, he simply adjusted the man's lymph and other glands and developed physical perfection from an otherwise physical wreck, but the old saw about the best laid plans of mice and men materialized to complicate matters for him. Reversals, however, have only served to spur science on to greater achievements, and Gale was no exception to the rule.

Mr. Repp is 37, is widely traveled and claims Pittsburgh as his birthplace, being a Californian since 1920.

* * * * *

GORDON A. GILES

Author of

THE ATOM SMASHER

I WAS born 26 years ago with ten fingers with which I began playing discordant rhapsodies on the typewriter at the calendar age of 16 (mental age 6). I have a trunk half full of rejected opi, suitably deodorized. It is a heautiful trunk. My first sale in science-fiction two years ago startled everybody I know except myself. I was floored. Since then I've been floored several more times. I like it.

I am not one of the twelve who understand Einstein's Theory, but am deeply interested in science. I am an arm-chair scientist, and an ardent science-fiction fan. I consider science-fiction the healthiest form of extrapolation in the history of man. In the time of the Greeks it was pointless philosophical discussion. In the Middle Ages men's minds turned to witchcraft and superstition. But in this modern age we have the baby growth of an outlook toward the future. More and more the world is beginning to think of present things in terms of tomorrow, rather than tradition-ridden yesterday.

In science-fiction, I consider *realism* paramount. I think a story can be made entertaining without going into realms of utter fantasy. "The Atom Smasher" is an attempt to show what might happen when and if an atomic-power process is ready for commercial use. Surely it would be a tremendously important thing in the course of history. It would (or will) have more effect than any other single invention in our civilization, based on power.

Long live science-fiction!

Gordon A. Giles, Chicago, Ill.

FREDERIC ARNOLD KUMMER, JR. Author of
THE FLYING DUTCHMAN OF SPACE

WHENEVER a writer is asked to furnish a biography of himself, he is, in most cases, put on the spot. Somehow one gets a rather guilty feeling that he should be, in the public eye at any rate, a lean, steely-gazed individual who dashes off yarns between duels or exploring expeditions to Patagonia. Some writers may live up to these qualifications, but not yours truly. I am, I regret to say, about as mediocre a person as one could wish to find. Give me a long walk with my big collic, Tramp, or a week-end's fishing, or an occasional binge and bull session with my literary accomplices, and I ask nothing more out of life. To make the picture completely prosaic, I am addicted to hridge and table tennis. Still, after an arduous day among the steaming jungles of Venus or the bleak, desolate deserts of Mars, such things are a welcome relaxation.

It all started back in 1913, March 27th to be exact, when I made a loud squalling entrance into this world. The place, if anyone should be interested, Catonsville, a suburb of Baltimore. After twenty-one years of watching my famous father tear his hair and swear at the typewriter, I made up my mind never to become a writer. Pursuing this plan, I got a job as a clerk with a large life insurance company. Four years of book-keeping was too much for even my placid soul and another writer was foisted upon an unsuspecting public.

Since yielding to the lure of the pen I have done all sorts of work, mainly for newspaper syndicates and pulp markets. Articles, love stories, humorous yarns, historical fiction, detective thrillers, verse, children's stories, and radio work. About the first of this year I got the idea of writing science-fiction, which I had long been a reader of, but never attempted to write. Since then I have sold the various magazines over sixty thousand words and have yet to have a yarn refused. In addition to being profitable, I enjoy writing science-fiction more than anything I have ever attempted and hope to continue in this field. Here's hoping I'll be seeing you in the pages of AMAZING STORIES, soon again.—Frederic Arnold Kummer, Baltimore, Md.

LIEUT. JOHN PEASE Author of
HORROR'S HEAD

LIEUTENANT PEASE was introduced to our readers with "The Invisible Bomber" in our June issue. He now comes to us with a story in a field of science quite unexpected of an Artillery Officer.

He tells us that, although apparently the only existing printed reference in the English language to Prof. Chichulin's experiment is the *New York Times* clipping which we have reproduced on page 44, he has been in correspondence with the Dr. Gantt mentioned therein, and has secured from him a verification of the facts there stated.

Further factual details, which Lieut. Pease has

embodied in his story, he obtained from a brother officer of the U. S. Army, who is a naturalized American citizen, and was formerly a First Lieutenant of Imperial Russian Engineers under the Tsarist regime.

* * * * *

THORNTON AYRE Author of
LOCKED CITY

STARTED writing science fiction about a couple of years ago because I saw in it an immense field for future development. In ten years it has come a long way: in another ten it will be an accepted branch of everyday literature, encompassing the book market and films with the regularity of drama and comedy today.

Wrote some awful stuff at first, science fiction being right off my ordinary line—my ordinary line being articles. Then sold "Penal World" and after a gap managed to sell "Whispering Satellite." Some said I imitated Weinbaum; some said I was original. The first guess was right. At that time everybody was Weinbaum-conscious, and as a newcomer I tried to emulate him. Ran into a blind alley doing it and tried to hit on a new mysterious style all my own—hence, "Locked City," which embodies mystery with adventure. Other yarns I have done since have also had the mysterious ingredient, which seems one thing so far missing from science fiction.

In age I am in the early thirties, unmarried, and hope to remain so. Believe that the classics of ordinary fiction all have the basis of science fiction if they're skillfully changed.

I believe too that England is on the verge of reaching the same heights as America in science fiction, to which I hope to add my humble part.

Referring again to "Locked City." Though it is a story of Mars—and how many yarns about that planet have been written!—I have tried to give an entirely new explanation for the disappearance of Martians. Maybe it's an improbable explanation, but I personally don't think so. As to the Living Keys in the form of Martian children, the idea came from watching a child do a remarkable mathematical analysis on the Blackpool Pleasure Beach. If mathematics, why not a key combination?

The sight of a dodderly old man, and my own thirst in the summer heat seemed to supply odds and ends. Anyway, "Locked City" emerged and traveled pronto to AMAZING. My aims? To do far better in future.—Thornton Ayre, Lancashire, England.

* * * * *

STANLEY G. WEINBAUM Author of
REVOLUTION OF 1950

I WAS born in Louisville, Ky., circa 1902, and educated in the public schools of Milwaukee and the University of Wisconsin. While at the latter institution I assisted in the demise of the now totally defunct *Wisconsin Literary Magazine*, succeeded once in having it suppressed (the only time, incidentally, that the publication ever showed a profit) and was ejected in 1923. All the same,

that crowd made Middle Western literary history and is still making it, though they've scattered. It included the rising star of Horace Gregory, the tragic Majory Latimer, Paul Gangelin, who writes plots for the movies (one smash to two flops), and the less literary but far more famous Charles Augustus Lindbergh, who enjoyed the honor of "graduating" with me. They summoned him back for an honorary degree.

Anyway, as to how I personally became interested in science fiction—I didn't. That's supposed to imply that I've always been interested in it, from the days of such juveniles as Robinson Crusoe, the Motor Boys series, and Tarzan, and eventually to the real classics of Verne and Wells. That doesn't exclude a few others who receive less attention from science fiction readers than they deserve, Bellamy (whose "Looking Backward" is still a social influence in such movements as the erstwhile popular Technocracy) Conan-Doyle, Poe, and Mrs. Shelley. Those writers wrote with an attention to realistic detail that has been rather neglected in these days of purple, green, or crimson rays, of ant-men, heetle-men, lizard-men, and what not. Science fiction has slipped a peg or two, right into the epic stage, with heroes, demi-gods, and mythical monsters. Or such is my impression.

And as to how I write—well, in longhand, with a pencil, on a sheet of white paper. I can't type a first copy successfully because the mechanics of typing takes too much attention, at least the way I type. It isn't a total loss, however, since it saves revision, which takes place during the typing.

Other details—I suppose I ought to claim I write by inspiration. I wish I did; it's by far the easiest and most effective way, and I don't think it can't be done either. It can; I've known people whose minds worked that way, but I'm not one of them. These fortunate souls suddenly receive an idea pre-cooked and ready to serve, and down it goes, fever-hot, on paper. But I have to think up my ideas, plan them to a fair degree of completion, and then write them. They usually change somewhat during the writing, and I have had them escape entirely, go rampant, and end up quite differently from the original plan.

To return to science fiction, there's one general weakness and one universal fallacy in the material published today. Most authors, even the best, seem imbued with the idea that science is a sort of savior, a guide to the ultimate hope of mankind. That's wrong; science is impersonal and never points a way, nor is it interested in either the salvation or destruction of the human race. Science describes, but does not interpret. A scientist says: "I call attention to the probability that if we permit this trend to continue, in half a century the average level will descend. If the trend is to be checked, the effective means possible is . . ." Not "we ought to" or "we should" but just *if*. That's all science has the right to say. Science indicates the road, but ethics chooses whether it is to be followed or not.

But science fiction can do what science cannot. It can criticize, because science fiction is not science.

It is, or at least ought to be, a branch of the art of literature, and can therefore quite properly argue, reject, present a thesis, proselytize, criticize, or perform any other ethical functions.

Or anyway, that's my opinion, and it won't make a bit of difference to those readers who've plowed through to this point. The younger writers will stand by their guns—or purple rays—and the younger readers will take as much delight as ever in super-scientists, Earth-Mars wars, ant-men, tractor rays, and heroes who save country, earth, solar system, or universe from the terrible invaders from Outside.

More power to 'em. I'd like to experience those same thrills again myself.—Stanley G. Weinbaum.

Editor's note: The foregoing autobiographical notes are excerpts from a sketch written for and published by Fantasy Magazine, in June, 1935, just seven months before his death on December 14.

* * * * *

HARVEY EMERSON

Author of

ARTIFICIAL HELL

CALIFORNIA has been my home for forty-eight years—years typical of the state itself. For in California we have the highest and lowest; the driest and almost if not the wettest; the largest and the oldest living things (Sequoia Gigantea), not to mention its share of self-sputters. I leave it to you if I mean the geysers or if I mean myself; for really, California has about everything.

They say in hirth I bumped my head and had to back up and try it a second time. Then I was christened HARVEY EMERSON, only to have one of the family object to the Harvey, whereupon they daubed me EMERSON BENNET my surname being HARTMAN. Then came school into which I butted, hacked away only to discover by reading such books as THE MERRYWELL BOY STORIES that always the hero was educated; so I set to work fitting myself for the role of hero. Followed graduation as a male nurse in a hospital, a crack at our Navy, lumber woods, mining, a politician's stenographer, clinical laboratory years, doctoring—

Most of my education having come following maturity, it has all taught me to think for myself. Or perhaps I was born analytically minded. So I have stored up stickers, questions of significance, items to provoke thoughts—AMAZING THOUGHTS. And what would you, as a reader, do with such thoughts as these.

That race of half-humans, half-angels which resulted from the Sons of God mating with the daughters of men as recorded in the first book of Moses! Incidentally, about those super-beings I wrote for several years. Result, LUNARCHIA, and six other novels in the series to be brought out soon. (Daniel Ryerson, Inc., 155 East 39th Street, New York.)

Then there was Einstein's pronouncement in 1929 that gravity is an electrical phenomenon, and if electrical, can it be reversed by electricity?

Then telepathy? Experiments by the Harvard School of Medicine prove our nerves operate by electricity; is it strange, then, that that German,

rendered deaf and dumb by injury in the WORLD WAR developed that rare receptivity which rendered his brain a veritable receiving set for others' thoughts? All of us have read of him. I myself have picked up telepathic waves over a thousand miles from the person with which they originated.

What forms lurk within the invisible bands of light which our eyes are unable to register? For of the 200,000 measured Angstrom units of light, only 4,000 fall within the powers of our eyes to pick up. For instance, I have seen a camera register what the unaided eye could not discern. What, then, might one see with adequate rectifying lenses or filters?

ARTIFICIAL HELL had its origin from that statement in the New Testament which recites that the air shall be burned up. And why not, given the proper catalyst? Another place the Bible says the water shall be turned into pitch. Try that on your radio.

When AMAZING STORIES announced its change of policy to make every story scientifically accurate, I was glad. Still, where will science end? Reverting to the Bible, it says that our most vivid imaginations are incapable of creating the good things which will come to us in actuality in the reorganization program of the universe. And if the Edenic TREE OF LIFE, were somehow discovered on some mystic island or in some engulfing jungle, and if one were to eat of its fruit with power to perpetuate life forever, and then if that person's head were cut off, what would happen?

So I read and enjoy stories even of space flights swifter than the passage of life; for if that author's imagination is incapable of reaching the actuality of the future, perhaps my incredulity is comparable to the very ludicrous pronouncements made no farther back than by our own fathers condemning as rot and folly the things which to-day constitute the simple necessities of our homes. —Harvey Emerson, Redlands, California.

SCIENCE QUIZ ANSWERS

TRUE OR FALSE

1. True.
2. True.
3. True.
4. True.
5. False. A perfect ruby is worth three times the same weight of diamond.
6. True.
7. False. Arachnida.
8. True.
9. False. The Dodo really existed.
10. False. Bats are mammals.

STRIKE OUT THE WORD THAT DOES NOT CONFORM

1. Doll.
2. Brier.

3. Eyelid.
4. Scissors.
5. Opaque.

SCIENCE TESTS

1. Conduction.
2. Alcohol.
3. Typhoid.
4. Elements.
5. Decreases.
6. 1,100.
7. Volume.
8. Artery.
9. Boyle's Law.
10. Winter.

SCRAMBLED SCIENCE TERMS

1. ASPHALT.
2. SCORPION.
3. ASPIRIN.
4. ELECTRON.
5. RHEOSTAT.

MARK THE WORD THAT HOLDS TRUE

1. Bones.
2. Stage.
3. Seeds.
4. Are Ruminants.
5. Itself.

PROBLEMS

1. He cuts 3 links; 5, 14, 31.

The first day he cuts through the 5th and gives it to his landlord; the second day the 14th; the third the 31st. The fourth day he gives him the first group of 4 links, in return for the 3 single links. The next three days he gives him the 3 links; then he gives him the second group of 8 links, getting back the first 7. He pays out the three singles again, then the group of four, etc. continuing until the 50 days are gone.

2. 1 pound, 3 pounds, 9 pounds, 27 pounds.

To weigh one pound, he uses the one pound piece on one side of the scales, the material to be weighed on the other; 2 pounds—the one pound block with material on one side, the three pound block on other side; 3 pounds—the 3 pound block on one side, material on other; 4 pounds—1 pound and 3 pound blocks on one side, material on other, and so on.

3. He flew at 125 m.p.h. and the distance was 160 miles.

Solving with two unknowns, result is as follows:

$$60 \left(\frac{X}{60} \right) + \frac{4X}{5} \left(\frac{21}{60} \right) = y$$

$$60 \left(\frac{X}{60} \right) + 10 + \frac{4X}{5} \left(\frac{15}{60} \right) = y$$

when X equals rate in m.p.h. and y equals distance flown, solving by subtracting the second equation from the first and solving X equals 125; substituting y equals 160.

QUESTIONS and ANSWERS

This department will be conducted each month as a source of information for readers. Address your letter to Question & Answer Department. AMAZING STORIES, 608 S. Dearborn St., Chicago, Ill.

Q. Does the weight of a metal decrease through the process of rusting?

A. No. Although it seems paradoxical, the process of rusting is accompanied by a slow increase in the weight of the solid. Rusting metals take on additional quantities of oxygen, resulting in an increase in weight until the last particle of metal disappears, when the weight remains stable.

* * *

Q. Have there been any new comets discovered recently?

A. Yes. The most spectacular, Finsler's comet, was reported by Dr. P. Finsler of Zurich, on July 4, 1937. It was about 32,000,000 miles from the earth during the early part of August; and since that time it has receded. Other important ones include a twelfth magnitude comet in the constellation Canes Venatici (the Hunting Dogs) discovered in February, 1937, by Dr. F. L. Whipple of Harvard Observatory; a seventh magnitude comet reported on February 27, 1937, by Prof. A. Wilk, Cracow Observatory, Poland; a thirteenth magnitude comet first observed by Dr. E. P. Hubble of Mount Wilson Observatory, on August 4, 1937; and Encke's comet, rediscovered by Dr. H. M. Jeffers, Lick Observatory, making its fortieth appearance since it was first observed in 1786.

* * *

Q. What is the difference between a meteorite and a meteor?

A. A meteorite is a mass of solid matter, too small to be considered an asteroid, which has landed on earth still retaining its identity, or travels through space as an unattached unit. A meteor is the light phenomenon caused by meteorites rushing through the earth's atmosphere.

* * *

Q. Why does a nail, when hit with a hammer, get hot?

A. The answer to this, and all similar questions, is this: There is a transference of energy. This particular energy is an active form of energy known as "kinetic." It is measured by the product $\frac{1}{2}mv^2$, where m is the mass of the moving body and v its velocity. Suppose the hammer which hits the nail weighs 2 pounds and is moving 10 feet per second at the instant of impact. If the hammer stops dead it has lost $\frac{1}{2} \times 2 \times 10^2 = 100$ units of energy, and some of this energy divides itself up among the many particles in the nail-head and hammer, whose energy of random motion is thus increased. Another portion of the energy of the hammer has been used up in over-

coming the resistance of the wood, or other material, into which the nail is fixed. Yet another fraction has been given to the surrounding air and dissipated in the form of the sound of the blow. Sounds are vibrations of air particles and are therefore a form of energy.

* * *

Q. Can a plane be detected by means of infra-red rays from its motor?

A. In experiments made in 1919 a 150 h.p. plane flew at a height of about 3,500 feet on a dark and hazy night and the distance of the machine from an infra-red ray detector varied between 4,000 feet and well over a mile. Clear indications of the direction of the plane were obtained in these trials, although the engine was running at only about one third full power, and the amount of heat radiated was consequently smaller than it would have been at full power. At first glance, it would seem that infra-red detection is a perfect safeguard against surprise attack, but on a clear night, the passage of a cloud will give a similar reaction to the detector. The reason is that the cloud behaves as a warm body compared with the clear sky and we can gain nothing by increasing the power of our infra-red detectors, unless we can learn to discriminate between clouds and aircraft. Another factor is the possibility of screening the heat of plane motors, in which case such detectors would be useless.

* * *

Q. What is the Brownian Movement?

A. Robert Brown, a botanist, first observed in 1827 that when a little lycopodium (spores of the club moss) is suspended in water and examined under the microscope, the small particles appear to be in motion. Each particle moves about in a zig-zag path, vibrating with a slow trembling motion. The kinetic theory furnishes the only satisfactory explanation of this phenomenon. The movement of the suspended particles is no doubt due to molecular bombardment on the part of the water. Apparently the particles of water are in perpetual motion and are continually colliding with the particles in suspension. The movement is shown by all suspensions, such as carbon, gamboge, gold, silver, etc., provided the particles are sufficiently small.

* * *

Q. What is the difference between organic chemistry and inorganic chemistry?

A. Organic chemistry deals with the compounds of but one element, carbon, which far outnumber those of any other element.

FACES THROUGH THE AGES

(SEE BACK COVER)

◆ Our back cover this month illustrates in color the major steps in natural progress of the face and brain toward the mysterious goal of all life. ◆

From the very beginning of life on earth, nature has gone through very definite steps toward some sort of ultimate goal. And in the process she has demonstrated a set purpose, in spite of many false steps which led her off into obvious paths of error. However, without exception, these 'mistakes' were abandoned upon demonstrating their uselessness in contributing toward that unseen goal.

To depict a complete chart of the advance of life would demand a very complex treatment, and including the 'mistakes' and the intermingling of species, it would seem very confusing to the layman. But singling out the major steps in nature's purposeful stride, the definite directness of it becomes at once apparent.

In our chart, we have made no attempt to include even half of the major steps, but only those we deem most important. In fact, we present but nine major steps, and reserve for the tenth, our conception of the *next* step in the scale—future man. His structure is a definite result of carrying forward the *same* principles which have governed the progress of the previous nine steps. And in each step we have presented the direct and progressive growth of the brain.

To recapitulate in order of progression, the first in our series is a reconstruction of the earliest fish type of life, a direct result of the hundreds of minor steps forward taken by nature in her cradle of life, the sea. Technically he is known as the Ordovician shark. His brain, perhaps was no larger than the illustration itself!

Following him along a definite line of evolution, comes the Devonian shark, who lived in the Devonian period, that era in which life first set foot on land to become the Upper-Devonian Amphibian. The Devonian shark was perhaps one of the most ferocious of the monsters of the sea. And from the size of his brain, all he knew was to kill.

It took more than a half million years to develop from the first Amphibian to the Permian Reptile, the third in our series. He was the forerunner of the era of ferocity, the great dinosaurs. His brain had grown a bit, but nature at this point in the scale, wasn't having much success in adding to the mental power of her proteges.

Number four is a reconstruction of what *Pariasaurus* must have looked like. He is a reptile of the Triassic period, and the direct ancestor of all the dinosaurs that peopled the Triassic with their gigantic bodies, eternally killing and eating with no time for anything else. Here nature tried to improve on the brain structure of her children

by giving them *two* brains, as in the case of *Brontosaurus*, but even so, it sometimes took hours after the creature was killed before either brain realized the fact.

An ice age swept much of life before it at this point, and it took *Cynodont*, a product of the following Cretaceous period to advance another notch in the major scale. It took him a million years to make up his mind as to whether he would be reptile or primate, and he wavered as an intermediary. But his brain had grown, and he was a sly, devilish rascal, who made the forests of the Cretaceous Era a place of horror with his eternal skulking about for food.

With the coming of the Eocene period in geological history, the true Primate made his appearance. And when he appeared, the last of the giant reptile mistake on nature's part had vanished. Life had truly developed the mammal now. And with the Primates life took to the trees. Here also, nature began to pay more attention to the brain. A cooling planet had begun to demand more intelligent life. And the huge reptiles had proved that size was the wrong approach to the problem.

At the end of the Upper Pliocene, the primate forms had developed to the point where our seventh major character appears. He was the first Chimpanzee. And to witness how well nature was progressing, he still remains as a definite and strong type of life to the present day. His brain was vastly larger than his predecessors, and he had begun to use it.

Then finally came man. The Java man. His era was the Pleistocene, and he had a battle on his hands for existence. Perhaps he came too soon. But the fact is, he didn't last. Nature here made many swift steps, swift in comparison to her former strides, but still reckoned in figures of million-year dimensions. And out of it all came modern man, the ninth and most modern major stage. How long it will be before modern man is replaced by the tenth step upward—by the future man we have imagined, with due attention to previous progression, we do not know. But if nature's experiment with life along mental lines is as definite as it would seem, from a study of brain growth, truly this new form will be something to marvel at. And what he will achieve . . . ?

So far as we know, nature began her great experiment on Earth, but will she end it there? Perhaps even modern man will begin to answer that question, and stride onward—to the stars!

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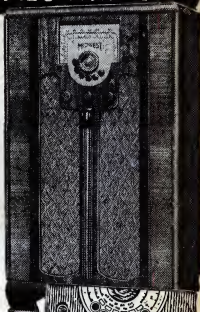
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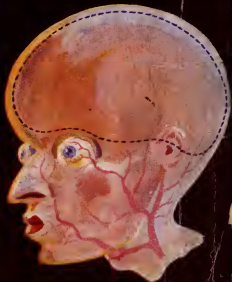
JAVA MAN

—Early Primitive Man. His large brain balanced a storn environment

From the beginning of time life has come up from the slime of the sea, its birthplace, through a long and complex series of stages to its present status, the many varied forms of animal, plant, and insect life. To present all of these stages in their correct relative order, and in their complex ramifications would be a gigantic task. Nor could it be done pictorially. The result would be a truly vast sheet of paper. Nor would such a representation be at all informative, or clear to the layman. It would be an incredible jumble of branching forms of life, all mixed up in a tangle of haphazard progression toward a rather vague goal. Nature, during its struggle up the ladder of life's progress, toward some unknown goal perhaps not even clear to herself, has committed many errors and blunders, only to abandon them unmercifully to try others. But through it all, she has achieved a series of major strides, in quite definite progression. It would be impossible to present even all of these major strides, but those given here are selected as being most prominent of the series. They are the GIANT strides of life's progress. (See Page 145)



MODERN MAN—Nature's latest step forward



MAN OF THE FUTURE—If nature continues to follow the definite trend that has been indicated in her first major strides toward her unknown goal, the man of the future will look something like this and his brain power will be enormous